

## POLIOMYELITIS

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IT is the purpose of this paper to discuss briefly some of the changing clinical aspects of poliomyelitis as they have occurred locally. Since the Charles V. Chapin Hospital cares for practically all of the hospitalized cases of this disease not only in Rhode Island but also in the nearby communities of Massachusetts and Connecticut, the statistics presented are representative of those derived from an area of approximately three-quarters of a million population. Including 1943 and to the present, almost one hundred per cent of the diagnosed cases have been hospitalized. Previous to that time, many cases were treated at home. The hospital statistics prior to 1943, while not corresponding exactly with the actual number of cases reported in the community, nevertheless remain a good cross-section of the salient features of poliomyelitis.

The first recorded case of poliomyelitis in Rhode Island occurred in 1895. Fourteen more cases were reported in the next fifteen years. It was not until 1910 that the first epidemic occurred, when 102 cases were reported to the local health department. Charles V. Chapin Hospital admitted its first patient for treatment in 1910.

There have been eleven years when poliomyelitis reached unusual proportions in Rhode Island from 1910 through 1950. Chart I includes all these years with the exception of 1922 and 1927 when 65 and 32 cases, respectively, were reported to the Providence Health Department. The first two epidemics were cases not hospitalized but those reported to the local health department. The remaining figures are those of the hospital records. The shaded areas in Chart I represent the actual number of patients who expired in each epidemic. The figures for per cent mortality are not graphed, but are merely derived for each epidemic year and noted. It is seen that the largest epidemic occurred

in 1935 when 229 patients were admitted. There were 16 deaths, a fatality rate of 7.1 per cent. It was not until 1943 that the fifth epidemic occurred: 172 cases were hospitalized with 4 deaths resulting, a fatality rate of 2.3 per cent. Three years later, in 1946, 95 patients were treated for poliomyelitis with 5 deaths (fatality rate 5.8 per cent). Since 1946, there have been more than 50 cases hospitalized each year through 1950 with the exception of 1948 when only 8 cases were reported to the State Health Department.

The apparent consistent drop in mortality figures can probably best be explained in that previous to the work of Aycock and Luther<sup>1</sup> who published a paper entitled "Preparalytic Poliomyelitis" in 1928, most cases were not diagnosed unless paralyzed and many so-called abortive cases were missed. Later, perhaps due to publicity and education and the work of the Poliomyelitis Foundation, more cases were diagnosed. It is generally agreed that the overall mortality at the present time should be near 5 per cent.

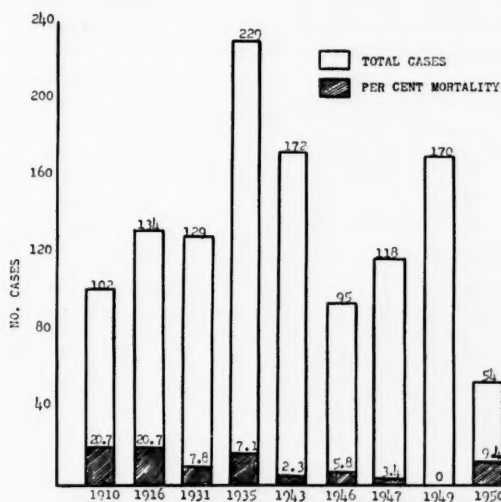


Chart 1. The Poliomyelitis Epidemics

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### Viruses of Poliomyelitis

Viruses isolated from the spinal cord of fatal cases of human poliomyelitis or the throat washings or feces from typical cases occurring in seasonal epidemics are ordinarily considered to be poliomyelitis viruses. Their exact identification is based on four rigidly determined criteria; first, upon clinical and histopathological manifestations of the disease produced in monkeys; second, upon host range; third, upon immunological relationships; and, finally, upon physiochemical properties of the virus.

The histopathological lesions of the brain and spinal cord of the monkey essentially duplicate in type and distribution those of human poliomyelitis. Primates are the only known experimental hosts for most strains directly isolated from human or extra-human sources. Any virus which is immunologically distinct from any previously established poliomyelitis virus but which possesses the above-mentioned diagnostic properties must be considered as a poliomyelitis virus. Any virus immunologically identical to a previously established poliomyelitis strain may be tentatively considered as a poliomyelitis virus. Many investigators have long attempted the purification of the poliomyelitis virus. Ultra-filtration studies demonstrate the poliomyelitis virus to be 8-12 milli-micra in diameter.

Thirty-nine representative strains have now been classified. The differentiation of these strains into separate types or groups of viruses has been accomplished by three experimental methods: (1) reciprocal vaccination-immunity, (2) second attack rates in paralyzed convalescent monkeys, and (3) serum neutralization tests. As a result, three types or groups of poliomyelitis viruses have been shown to exist. All isolated strains, but one, have been demonstrated to be related to either the Lansing

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group or the Brunhilde group of viruses. The Leon virus is not related to these two types and thus represents a third separate group.

### Seasonal Incidence

The seasonal aspect of the disease is depicted in Chart 3. Except for a sporadic case occurring in June, the epidemics always commence in July. Usually no more than 8 cases are admitted during July, although 1947 was an exception when 17 cases were seen in that month. August and September combine to produce the largest number of poliomyelitis hospital admissions. The peak is usually reached in the last week of August and early September followed by a slow, steady decline of newly diagnosed cases until the first cold weather or light frost destroys the epidemic. Analysis of the 1947 and 1949 epidemics shows identical numbers of poliomyelitis cases reported on September 30. Yet the yearly reports also indicate that 50 more cases were admitted in 1949 than in 1947. This is partially explained by the fact that the autumn of 1949 was very mild in comparison with the inclement and cold weather which plagued Rhode Island in 1947. Usually only a few isolated cases are seen after the first cold spell of weather.

### Age Shift

Poliomyelitis has always been considered a disease of children, especially those under the age of 10 years. The cases admitted to the Chapin Hospital in the past twenty years (1931-1950) were reviewed. After examining Chart 2, it becomes evident that adults are becoming increasingly more affected. In 1931, 84 per cent of the cases were under 10 years and only 5 per cent were older than 21 years. By 1935, the general trend towards involvement of older age groups was quite apparent. In that epidemic, 79 per cent of the patients were under 10 years. Seven were less than 1 year, the youngest patient was 1 month, and the oldest was 52 years. The greatest incidence was in the 2-year group (25) and the next in the 3-year group (24). However, 21 per cent of the cases were older than 10 years and 6 per cent were older than 21. In 1943, the number admitted under the age of 10 years averaged only 71 per cent. One patient was under 1 year and the oldest was 36 years. Seventeen cases were in the 7-year group, and there were 12 cases each in the 4, 5, 6, and 9-year groups. Patients older than 10 had increased to 29 per cent and 7 per cent of the patients were more than 21 years old.

This general trend towards an older age group has continued unabated so that today, poliomyelitis is as much a disease of the adult as of the younger child. Although 40 per cent of the cases admitted during 1950 were under the age of 10, only 22 per

	1935	1943	1946	1947	1949	1950	Totals
Jan.	1					1	2
Feb.							
Mar.							
Apr.							
May							
June		2		3	1	1	7
July	7	8	1	17	8	7	48
Aug.	84	48	19	52	45	13	261
Sept.	96	75	43	38	55	20	327
Oct.	29	33	27	7	39	6	141
Nov.	12	5	3	1	17	5	43
Dec.		1	2		5	1	9
Totals	229	172	95	118	170	54	838

Chart 3. Seasonal Incidence

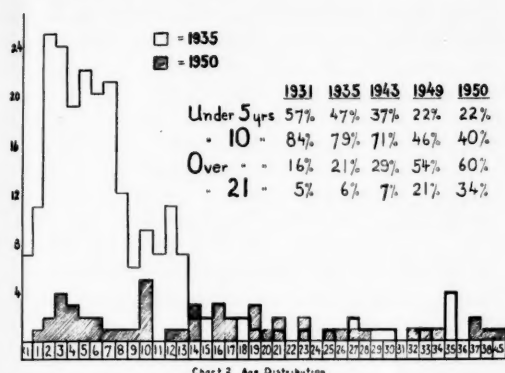


Chart 2. Age Distribution

cent were under the age of 5 in 1949 and 1950. This is in sharp contrast to the 84 per cent seen under 10 in 1931. In 1949, 54 per cent of the patients were older than 10 years and 21 per cent were over 21. Forty-eight patients were 15 years or older; one male was 41 and a female was 41 years old. The age group most affected was the 7-year-olds (15) and there were 10 patients who were 9 years old. Seventy-nine (46%) patients were under 10 years and 36 (21%) were older than 21. There were 8 patients in each of the following age groups: 2, 4, 8, and 11.

Whereas in 1931 only 16 per cent of the cases were more than 10 years old, in 1950 more than 60 per cent had reached adolescence and were older than 10 years. Similarly, patients over 21 years had increased to 34 per cent. The significance of this is not completely understood, but it is emphasized to alert the physician to the diagnosis of poliomyelitis as occurring in adults during the summer and autumn.

Another observation, in addition to the obvious age shift, is that poliomyelitis, while becoming a severe disease in the adult, is apparently a milder disease in children. This was first manifested in 1943 when there were 4 deaths. Two of the patients were 21, 1 was 32, and 1 was 37. In that epidemic of 172 cases, the fatality under 21 years was zero and over 21, it was 23 per cent. Albrecht<sup>2</sup> recently noted in reporting the effect of fatigue on the prognosis of poliomyelitis, that adults, irrespective of activity, are more severely affected than children. In 1950, 54 cases were admitted and there were 5 deaths: the ages were 14, 19, 22, and 2 patients were 23 years old. In 1947, there were 4 deaths;

	1931	1935	1943	1946	1947	1949	1950
Males	59%	61%	64%	62%	60%	56%	48%
Females	41%	39%	36%	38%	40%	44%	52%

Chart 4. Sex Distribution in Poliomyelitis

2 of them were pregnant women. The increasing number of non-pregnant females affected over the age of puberty has become very apparent. In addition to 2 female deaths during 1950, there were 13 other female patients admitted with poliomyelitis who actively menstruated. Their ages ranged from 14 to 45 years.

### Tonsillectomy

The incidence of poliomyelitis following tonsillectomy has received considerable attention for several years. Most alarming was the report<sup>3</sup> in 1942 of a family of six children in Akron, Ohio. Five of the six children had a tonsillectomy on the same day, all of whom later developed bulbar poliomyelitis and three died. The other child, the youngest, was not operated on and remained well even though the virus was found in his stool.

Cunning<sup>4</sup>, in a four-year nationwide survey (1946-1949) for the American Laryngological, Rhinological and Otological Society, Inc., studied 36,678 cases of poliomyelitis as well as 96,379 cases of tonsillectomies and was unable to find any causal relationship existing between poliomyelitis and tonsillectomy. However, he did not advise any elective surgery during any epidemic.

M. Siegel<sup>5</sup> studying data obtained in New York City during an epidemic year (1949), noted evidence of an increase in the incidence of poliomyelitis shortly after tonsillectomy. The extent of the risk, for cases occurring within one month after operation, appeared to be several times greater among tonsillectomized individuals than among others of comparable age in the general population.

M. Siegel<sup>6</sup> studied a total of 6,524 cases of poliomyelitis reported in New York City 1944-1949 and found the percentage of bulbar paralysis was significantly higher than expected in post-tonsillectomized cases and occurred within one month after operation.

Anderson<sup>7</sup>, in a study of the 1946 outbreak of poliomyelitis in Minnesota thought the risk of contracting this disease to be three times greater if tonsillectomy is performed, and the chances of bulbar infection eleven times greater for children who have recently had their tonsils removed. In this study there were 16 cases of poliomyelitis, of which 12 were the bulbar form, following 2,686 tonsillectomies as compared to 491 cases, of which 96 were bulbar, in a comparable group of 240,799 children aged 3 to 7 years. This amounts to an attack rate of 1 out of every 490 children as compared to 1 out of every 168 patients operated upon. The bulbar ratio is even more striking, 1 in 2,508 as compared to 1 in 224 after operation.

### Immunization

The possible relationship between paralytic poliomyelitis and injections for immunizing against

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whooping cough, diphtheria, tetanus, or injections of other biological and medicinal substances, recently has been the subject of intensive study by English, Australian, and American workers. The American investigators, in addition, have studied the possible effects of injections of such other substances as penicillin, novocaine, etc. In many cases of paralytic poliomyelitis it was found that the limbs in which injections were made were paralyzed more frequently than corresponding limbs of cases with no history of injection. No such relationship was found when the injection was given more than thirty days before the onset of poliomyelitis. When it was announced in June in the newspapers that the New York City Health Department had discontinued all immunizations until October first, there was considerable discussion and comment.

At the last meeting of the American Medical Association, the National Foundation for Infantile Paralysis, in an attempt to clarify the existing data, issued a statement<sup>8</sup> which is quoted here, in part:

"The studies do *not* show that injections for the prevention of whooping cough, diphtheria, tetanus, or injections of other medicinal substances, are the cause of poliomyelitis. The great majority of cases of poliomyelitis give no history of recent injections. There is no evidence that poliomyelitis infection is any more frequent among persons who receive such injections than among those who do not. The possibility that an injection may in some way tend to convert an otherwise non-paralytic into a paralytic infection should be considered although it lacks proof. If established, it would mean that an injection of any of the substances mentioned, at a time when poliomyelitis is abnormally prevalent in the community, may entail some small added risk to the person receiving it. There is no reason to believe that the added risk would extend beyond the month immediately following the injection, or that any added risk exists at all if injections are given at a time when poliomyelitis is not prevalent in the community.

"... The relative risks of giving or withholding an injection must be weighed in each individual case. Whether an injection of a medicinal substance is needed can be determined only by the physician dealing with a specific patient. He must determine in each case when injections are and are not warranted."

This factor has not been specifically investigated in any of our series of cases but during the epidemic of 1950, 2 cases were noted to have paralyzed limbs corresponding to a recent inoculation.

#### ***Fatigue and Physical Exertion***

It has been noted for some time that fatigue and excessive muscular activity have a definite predis-

posing factor toward poliomyelitis. It has been possible to obtain a very definite history of fatigue and exhaustion in most cases of poliomyelitis in adults admitted to this hospital. Some have advocated three weeks of rest after any suspicion of poliomyelitis. Recently Albrecht<sup>2</sup> studied this problem and concluded that deaths and severe paralysis in children are not related to physical activity either before or after the onset of the symptoms of poliomyelitis, but in adults they may be attributable in part. He stated that factors other than age and activity are of major importance in the prognosis.

Probably related to fatigue, Brahdry<sup>9</sup> completed a study of cases transported to the hospital over long distances and concluded that this may be harmful to a patient in the acute stage of poliomyelitis.

#### ***Analysis of the 1950 Epidemic***

In cooperation with Dr. J. L. Melnick of Yale University, Department of Preventive Medicine, virology studies were completed on 21 of the patients treated in the epidemic of 1950. Originally it was the intent to study only the non-paralytic cases and to confirm, if possible, the results of the Chapin Hospital investigation in 1948 of 18 cases of non-paralytic poliomyelitis, when the Cocksackie virus was isolated and definitely identified. However, because several cases had marked spinal cord and bulbar involvement, the study was expanded to include 8 paralytic cases as well as 13 non-paralytic cases. Seven of these patients were thought to have polioencephalitis clinically.

The method of study was as follows. Nasal and pharyngeal cultures were taken on each of the first three days after admission, stools were isolated, and 15 cc. of blood serum and 5 cc. of cerebrospinal fluid were collected on the first and twenty-first hospital days. All material was immediately frozen and later studied. Cocksackie, encephalitis, and mumps viruses yielded negative results. The poliomyelitis virus was the causative agent in all the cases studied.

While the total number of poliomyelitis patients admitted during 1950 was less than in any of the previous epidemics, the severe character of the epidemic and the high mortality gave concern. The bulbar form of the disease was diagnosed in 24 per cent (13 patients) of the cases. Increased numbers of lymphocytes and corresponding elevation of the protein in the cerebrospinal fluid were present in all the patients in whom a diagnosis of poliomyelitis was made. No prognostic relationship was noted between the cerebrospinal fluid findings and the degree of resulting impairment or recovery. Twenty per cent (15 patients) had normal temperatures on admission. Elevations in temperature usually dropped to normal after about two days



Number Cases	Days Ill Prior to Admission	Temperature on Admission	Duration of Temperature	Brain Stem Involvement	Use of Respirator	Urinary Retention	Constipa- tion	Vomiting
1	26 (D)	100.8	4 da.	+	+	+	+	+
2	23	98.6						
3	3	100.6	1					
4	28	93.6						
5	1	101	5	+		+	+	+
6	23	98.6						
7	14	100	1					
8	4	98.6						
9	11	99.8	1				+	+
10	7	99	2					
11	11	100	1				+	
12	3	100	1			+	+	+
13	3	100.4	4				+	
14	8	99.6					+	
15	4	101.2	1				+	
16	12	98.6						
17	10	100	1					
18	6	100	2				+	
19	1	101	4	+			+	+
20	4	103	1	+			+	
21	7	100.2	1				+	+
22	3	100	3				+	
23	3	101.2	2				+	
24	3	100.8	4	+		+	+	
25	8	101.4	2	+		+	+	+
26	7	99		+		+	+	+
27	2 (D)	101.2	1	+		+	+	+
28	1	100.4	2			+	+	+
29	3	102.5	4			+	+	+
30	4	101	1			+	+	+
31	4 (D)	101	4	+	+	+	+	+
32	2	100.6	3			+	+	
33	6	101	7			+	+	
34	3	102	2				+	
35	3	100					+	
36	3 (C)	104	3				+	+
37	1	98.6						
38	4	102	7					
39	4	102	3					
40	16	99.8					+	+
41	13	101.2	1				+	
42	4	100	1				+	
43	1	101	1				+	+
44	7	99.6		+		+	+	+
45	10	99.2					+	+
46	5	101.4	7	+			+	+
47	8	98.8					+	+
48	9	101.6	3				+	+
49	5	103	3				+	+
50	5	99.6					+	+
51	3	98.6		+			+	+
52	4	102	2		+	+	+	+
53	1 (D)	102	4	+	+	+	+	+
54	3 (P)	102	10	+	+	+	+	+
TOTALS				13	4	12	36	26
(D) Died				(24%)	(7%)	(22%)	(66%)	(48%)
(P) Poor condition								

Chart 5. Poliomyelitis: Observations  
during 1950 Epidemic

but spread of the disease frequently continued until the temperature did subside to normal. Failure of the temperature to return to normal values prognosticated severe nerve involvement and, in the present series, even death in 5 patients.

Four patients required the use of the respirator because of severe intercostal paralysis. Two of these were pregnant females. One, 22 years old, with marked spinal cord and brain stem involvement and elevated temperature on admission, had rapid spread causing paralysis of the muscles of respiration and died on the third hospital day despite the respirator and constant nursing and med-

ical care. The other, a 21 year old nurse who had done special nursing duty for a case of poliomyelitis three weeks prior to hospitalization, was admitted with marked involvement of both lower extremities. She was discharged after five weeks with some residuum of the flexor group of muscles of the right hip and hamstring muscle group of the right thigh.

Urinary retention, constipation, and vomiting were carefully watched for in each patient. Two-thirds of the patients were troubled with constipation either before admission or while in the hospital. Twenty-two per cent had difficulty in voiding. Prostigmine, furmethide, urecholine, and the usual psychological inducements were employed with moderately good results. Vomiting occurred in 48 per cent of the patients: coffee-ground vomitus developed ominously a few hours prior to death in two instances.

Treatment at the Chapin Hospital resolves itself to diligent nursing and medical care during the first few days of the illness plus hot packs and physiotherapy. Physiotherapy consists of active and passive motion and exercise as soon as the patient can tolerate it after the temperature has returned to normal. The hot packs are of much value. In the warm summer months, when hot packs should be the most uncomfortable, the adult patients request them because of the comfort and satisfaction that they derive from them. Their usefulness is not all psychological, because they do relieve painful muscle spasm.

### Conclusions

1. Some factors of the epidemics of poliomyelitis occurring in Rhode Island are discussed.
2. Possible relationships of tonsillectomy, immunizations, and fatigue to poliomyelitis are briefly reviewed.
3. A brief review of the last epidemic is presented.

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## PRESENT STATUS OF ANTIBIOTICS AND THE FUTURE IN THIS FIELD\*

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THE OBJECTIVES of this report are—

- 1) to develop perspective in the field of antibiotic therapy as an area in current medicine; and
- 2) to project therefrom potentialities of developments as these may be anticipated at this time.

### *The Present Status*

After latent periods following the development of the concept of antibiosis by Vuillemin in 1889, the synthesis of sulfonamide compounds as dyes by Gelmo in 1908, and the observations made by Fleming in 1928, realization of effective chemotherapy with the sulfa drugs came during the fourth decade of this century, followed by remarkable developments of antibiotic therapy to its present proportions during the fifth decade, bringing to realization achievements that only 10 years ago were but nebulous hopes and dreams.

The development of any one of these several therapeutic agents, whether involving research carried out with benefit of urgency of war and of the potent force of patriotism, or without these during the post-war era, makes a thrilling story; but this is neither the time nor the place for such recital. However, we should not lose sight of the timing of such developments, if we would have perspective . . . if we would see both forest and trees of antibiotics in medicine, today and tomorrow.

Among scores of antibiotic substances discovered through intensive organized research carried out on extensive bases, in laboratories both of industrial organizations and of institutions of learning, seven only have withstood tests of definition and requirements of applicability. These seven

(penicillin, bacitracin, tyrothricin, streptomycin, and the three "broad spectrum" antibiotics: Aureomycin, Chloromycetin, and Terramycin), effective in treatment of patients with disease states caused by an impressive array of microbiologic forms (including: gram-positive and gram-negative bacteria; spirochaetes; rickettsiae; and some of the larger so called "filtrable" viruses) have been revolutionary in their effect on the practice of medicine insofar as infections are concerned.

Many other substances which showed promise on preliminary study because they possess antimicrobial attributes, are no longer subjected to intensive study; they have been discarded because they failed to withstand tests of definition and requirements of the ideal antibiotic. Still others, not yet available for use in medicine, are referred to in reports of clinical investigation: neomycin, for example, was the subject of a paper appearing in the Journal of the American Medical Association in the issue of April 28, 1951; and viomycin was the subject of a series of papers which appeared in the American Review of Tuberculosis in the issue of January 1951. Whether these two antibiotics will be found suitable for wider use, as in treatment of patients with tuberculosis, will require further work and clinical trial: all that can be said now is that they show promise of usefulness but they are not free from undesirable effects in some patients.

References to tests of definition and requirements of antibiotics have been made: these stimulate the question: What are these tests of definition and requirements of antibiotics?

Although the concept of antibiosis is more than 60 years old, the word "antibiotic" as it is used in the currently acceptable sense was first suggested by Waksman of Rutgers University in 1941. His first definition of the term is of interest:

"An antibiotic is a chemical substance, produced by microorganisms, which has the capacity to inhibit the growth of and even to destroy bacteria and other microorganisms. The action of an antibiotic against microorganisms is selective in nature, some organisms being affected and others not at all or only to a limited degree; each anti-

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biotic is thus characterized by a specific antimicrobial spectrum. The selective action of an antibiotic is also manifested against microbial versus host cells. Antibiotics vary greatly in their physical and chemical properties and in their toxicity to animals. Because of these characteristics, some antibiotics have remarkable chemotherapeutic potentialities and can be used for the control of various microbial infections in man and in animals."<sup>1</sup>

Waksman subsequently revised his definition which now reads:

"An antibiotic is a chemical substance, produced by microorganisms, which has the capacity to inhibit the growth and even to destroy bacteria and other microorganisms, in dilute solutions."<sup>1</sup>

Thus, it is seen that, although, in medicine, the term is usually used as a designation for a substance useful in treatment of patients with infections due to microbiologic forms, in Waksman's concept such substances may not have usefulness beyond studies carried out in the laboratory, as in bacterial cultures.

Requirements for acceptability of an antibiotic useful in medicine have been defined and are generally recognized in terms of these ten standards:

1. *Selective antagonistic activity* . . . against microorganisms pathogenic for man or for lower animals (or for plants);
2. *Potency* . . . to be capable in low concentration both in vitro and in vivo, to inhibit growth or to kill such pathogenic microorganisms;
3. *Sustained effectiveness* . . . so as to be not conducive to emergence of resistant strains of microorganisms;
4. *Safety* . . . to be harmless to the host-patient under sustained maintenance of concentrations required for effectiveness against pathogenic microorganisms;
5. *Absorption* . . . for systemic availability, as in blood plasma, from body surfaces (gastrointestinal tract, lungs, skin) in addition to absorption from a site of injection;
6. *Diffusibility* . . . to be capable of resisting binding with body tissue and blood proteins, to be able to penetrate cellular membranes (as do small intact molecules in diffusion);
7. *Stability* . . . to be capable of resisting disintegration both in the mammalian body and on storage on the shelf, and of resisting excretion;
8. *Solubility* . . . in aqueous and other solutions, solvents, and diluents tolerated in or on the mammalian body;
9. *Availability* . . . to be capable of quantity production either by methods of fermentation

and extraction (biosynthesis), or by methods of chemical process (synthesis); and

10. *Low cost* . . . to be available in quantity at a cost to the patient sufficiently low to encourage and to permit wide usage as needed.

Although no one of the seven antibiotics fulfills all these requirements (and, indeed, the finding, ever, of an antibiotic that fully satisfies these 10 requirements will be remarkable!) the search for better antibiotics continues. As screening procedures uncover substances that appear to have interesting antimicrobial attributes, these are studied intensively, in each instance being put to these tests. Certainly the substance must meet the first four requirements (of selective antagonistic activity, of potency, of sustained effectiveness, and of safety), as essential; obviously, the next four (of absorption, of diffusibility, of stability, and of solubility) are of almost equal import; and the last two (of availability, and of low cost) are basic to full potentialities of enhancement of the public health and of the common weal through application of antibiotic therapy on bases of criteria of need and of usefulness.

If none of the currently available antibiotics meet all 10 requirements for the ideal antibiotic, wherein do they fail? It may be profitable to consider briefly each of the seven antibiotics from this point of view for herein lies at least part of the basis of decision of the practicing physician in his answer to the question "Which antibiotic shall I use for this patient in this infection?"

Before giving consideration to major deficiencies of each of the seven antibiotics when they are tested by requirements for the ideal antibiotic, may I cite three points which impress me as having import in this connection?

*A*—Since antibiotic therapy, even with penicillin, is but 10 years old (and with members of the broad-spectrum group less than 5 years old), the whole story of antibiotic therapy is not known: no one person has opportunity of knowing total experience with any one of the seven antibiotics, since, of course, much knowledge has accrued on all seven. But openmindedness is required toward antibiotic therapy, along with wholesome skepticism (though I would plead against cynicism) as the horizon is extended through continued research and clinical investigation to broad experience.

*B*—Contributions continue to be made to medicine not only by research teams in laboratories maintained as integral parts of great universities, but also by qualified teams in laboratories maintained by industry. In stress of war-time, the force of patriotism

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permits great achievement, as, witness the teamwork that compressed decades into a few years in the development of penicillin: you know the story and it need not be recited here. But ordinarily not appreciated are the stories of post-war discovery, development, and production of the broad spectrum antibiotics, and particularly that of synthesis of Chloromycetin. Thus, without the force of patriotism in the stress of war, through cooperative working arrangements involving facilities and personnel of laboratories of both university and industry, these achievements came out of teamwork in the long-established and still effective plan wherein wholesome competition is an important force.

- C—We of the pharmaceutical industry are fully as unhappy as are most practicing physicians at premature announcements in unwarrantedly over-enthusiastic terms in the public press of so-called "wonder drugs." A free press is one of our precious institutions, and perhaps one of the prices to be paid thereof is the risk of such reports. Unfortunately, too frequently, medical information is interpreted by writers whose backgrounds in medicine are limited, understandably; limitations of space and of time often operate to their disadvantage in preparing material for publication; but it would seem that oversimplification and non-qualification might be minimized, and that enthusiasm might be temperate and controlled so that the lay reader might get a more accurate less distorted picture. Health education activities, even to include dissemination of public health and medical information, are worthwhile: an informed public is a sound objective; and everyone is interested in his own personal health problems and desires information related thereto. But it is not sound to attempt to inform a public inadequately prepared therefor, with advanced medical information. "If 'a little knowledge is a dangerous thing' . . . a little less is a little more" is undoubtedly true; but insofar as medicine is concerned, a little more discretion in presentation of information through the daily press and through monthly and weekly periodicals of pocket size and larger, would do much toward creating less unhappiness and less dissatisfaction among larger numbers of lay and professional segments of our population.

And now, to brief appraisal of the seven antibiotics insofar as they fail to fulfill the 10 requirements of the ideal antibiotics:

*Penicillin*: Notably non-toxic and so highly effective, in most patients with infections due to microorganisms of its antimicrobial spectrum, that it revolutionized therapy in such patients, penicillin has certain well-defined deficiencies: its effectiveness is not sustained so that resistant strains of microorganisms do emerge; its diffusibility is limited, as, its relative inability to cross the blood-brain barrier; and it is rapidly excreted from the body. The latter inadequacy and its instability in aqueous solution outside the body, have been overcome to a considerable degree through development of newer forms of penicillin: with one product now available, combined soluble and repository forms produce immediately very high levels in blood serum and maintain high levels therein for periods up to 12-24 hours or longer so that one or two daily injections provide moderately intensive therapy. And, in the product cited, absence of dispersing agents reduces further the hazard of allergy to the two salts of penicillin only. The price history on penicillin is outstanding: but various factors operate in this instance to make it unique, so unique in fact that it probably will not be duplicated among other antibiotics.

*Tyrothricin*: Useful in treatment of patients with infections due to gram-positive bacteria, involving skin, bone, mucous membranes, soft tissues, and pleurae, tyrothricin may not be used by any route other than topical application: on injection of this antibiotic, however, hemolysis occurs.

*Bacitracin*: As in the instance of tyrothricin, bacitracin has limited usefulness in that its antimicrobial spectrum is rather narrow (gram-positive bacteria) and it may be used only by topical application: on injection it produces kidney tissue injury.

*Streptomycin* (and its derivative dihydrostreptomycin): Although this antibiotic is the only one of the seven that is effective in vitro against *Mycobacterium tuberculosis*, and in vivo and clinically in patients with infections due to this microorganism, streptomycin, and dihydrostreptomycin, have two well-defined attributes that merit discussion. The antibiotic fails to have sustained effectiveness, so that high percentages of strains of *M. tuberculosis* responsible for disease become resistant during prolonged periods of treatment required. Further, many patients receiving streptomycin therapy present evidence of disturbance of function of the eighth cranial nerves. Earlier experience with dihydrostreptomycin gave impressions that this form of the antibiotic was as effective against the disease process and that development both of bacterial resistance and of host-patient eighth cranial nerve damage was definitely delayed; but further experience demonstrated that both effects developed at



intervals and to degrees not distinctly different from those resulting from the use of streptomycin.

It may be appropriate to mention in passing that combined therapy using the sulfone Promizole, or para-aminosalicylic acid (or its sodium salt), in large dosage, daily, with streptomycin or dihydrostreptomycin in moderate dosage on alternate days (or on schedules of injections twice or thrice weekly) seems to provide tuberculous patients with effective antibiotic and chemotherapy superior to other schedules, and, at the same time, with less hazard as to development either of bacterial resistance or of eighth cranial nerve damage.

Three other points merit mention before we leave streptomycin: (1) this antibiotic, usually thought of as the one useful primarily in patients with tuberculous infections, is useful also in patients with other infections, notably tularemia; (2) frequently, streptomycin, whose antimicrobial spectrum overlaps that of penicillin, will be found effective in treatment of patients whose infections are due to microorganisms earlier sensitive to but now resistant to penicillin; and (3) non-absorbability of streptomycin from the gastrointestinal tract, though not permitting effective therapy on oral administration in patients with pulmonary tuberculosis, for example, has proved advantageous in preparing patients for surgical procedures involving the intestinal tract.

The broad spectrum antibiotics: Aureomycin, Chloromycetin, and Terramycin: Primarily, presumably, because of remarkable overlapping of antimicrobial spectra and of similarity of therapeutic usefulness in patients, these three antibiotics, though quite different in several respects, are frequently considered together. The broad-spectrum aspect of their common attributes includes antimicrobial activity against numerous microbiologic forms among: bacteria (including gram-positive and gram-negative cocci and bacilli, and spirochetes); rickettsiae; and certain of the larger so-called "filtrable" viruses.

Each of the three was discovered, developed, and produced from a different member of the actinomycetes, through investigation by a different team of research workers, in a different laboratory, maintained by a different organization. Indeed there are distinct differences in the three antibiotics, including differences in physical attributes, in chemical characteristics, in microbiologic activity, and in therapeutic effectiveness.

Probably most significant among physical differences are those of solubility and of taste: Aureomycin and Terramycin have definite advantages over Chloromycetin in these two attributes, for Chloromycetin is only slightly soluble in water (2.5 mg. per ml.) and has a very bitter unpleasant enduring taste. However, these are relatively unim-

portant except for their effects in delaying development of other forms of Chloromycetin, as for parenteral use, for topical application, and in palatable liquid vehicle permitting flexibility of dosage for pediatric use more particularly; and they are offset by certain advantages found in Chloromycetin, *per se*.

Diffusibility is greatest in Chloromycetin, for, on oral administration highest levels are attained in blood serum, in cerebrospinal fluid, in aqueous and vitreous humors, and, given the woman in labor approximately two hours before delivery, in blood serum of the newborn infant. Also, other points merit mention: (1) Chloromycetin's diffusibility through blood-brain and placental barriers, and into aqueous and vitreous humors, may be related to its molecular weight (310, smallest of the three broad-spectrum antibiotics and smaller even than that of penicillin); and (2) though it is sometimes emphasized that blood serum levels are not important and that tissue levels are the important criteria, in granting the merit of the point, inquiries are made in this connection as to how tissue levels arise without blood serum levels, and how does one ascertain tissue levels in his patients?

Availability of all three members of the group is improving: in production of both Aureomycin and Terramycin fermentation-extraction methods only are applicable since, as yet, the molecular structures of these two antibiotics are unknown; but in production of Chloromycetin, since the molecular structure is known and since it lends itself to chemical process, production is by biosynthesis (fermentation-extraction) and by synthesis. A nitrobenzene derivative, Chloromycetin is a crystalline chemically pure single compound, so that its microbiologic activity and therapeutic effectiveness are dependably uniform. These attributes are mentioned as possible explanation for lowest incidence of side-reactions occurring in patients receiving Chloromycetin among those receiving the three broad spectrum antibiotics. Though side-reactions affecting gastrointestinal tract, mucous membranes, and skin do occur in some patients as a result of therapy with all members of the broad spectrum group, it is recognized that, ordinarily, even with higher dosage, these occur with lowest frequency in those patients receiving Chloromycetin. Occurrence of mild diarrhoea might be anticipated as a result of oral administration and of fecal excretion of any effective antibiotic on the basis of change in bacterial flora in the intestinal tract; similarly, with such change in the bacterial flora of the tract, biosynthesis of factors of the vitamin B-complex by microorganisms normally inhabiting the tract, even to result in development of mild or severe vitamin deficiency states, might be expected also in patients receiving antibiotics orally over a period of several

*continued on next page*

days or a few weeks. This potentiality in many instances is prevented from becoming a reality through supplementary vitamin therapy. Explanation of occurrence of moniliasis as reported in patients receiving broad spectrum antibiotic therapy, is less easily made: it is anticipated, however, that symbiotic relationships will be found to be involved therein.

Finally, all three broad-spectrum antibiotics, though in reasonably good supply, on wide bases, are costly. As yields improve and as unit costs of production decrease benefit thereof will be passed on to the consumer: three price reductions have been made and undoubtedly others will come. Although it is doubted that the price history of any member of the broad-spectrum group, or of the group as a whole, will ever be comparable with that of penicillin, assurance is given that the physician and the patient may rely with confidence on the continuation of the pharmaceutical industry's policy that is reflected in its record over the years, of quality-controlled products at reasonable ultimate cost. On studying price histories during recent years, one is impressed by the modesty of moderate revisions upward, in general, of pharmaceutical products when comparisons are made with those revisions made in other commodities, and especially with increased costs of labor, of materials, of supplies, of equipment, and of buildings. That record is one of which we in the industry are proud and which we strive to maintain.

### *The Future*

It would be presumptuous to list predictions of things to come from continued research carried out in many laboratories, on many fronts, on intensive bases, even in the one field of antibiotics. The search continues for new and better antibiotics, effective against those microbiologic forms not susceptible to the seven available antibiotics or to other chemotherapeutic agents.

Perhaps the most intensive search now under way is for an antibiotic or other chemotherapeutic agent that will be more satisfactory to use, more effective, less toxic, and less likely to permit emergence of resistant strains than is streptomycin, for treatment of patients with tuberculosis. Two new antibiotics, neomycin and viomycin, are now in clinical investigation and reports thereon have appeared, as noted earlier. Are these the answer to the problem in tuberculosis? Preliminary reports are less promising than it was hoped they might be: further work will provide the answer.

There are other bacterial infections in which the seven antibiotics are disappointing: staphylococcal infections are due more and more frequently to strains resistant to penicillin and to other agents; brucellosis, especially in chronic forms, though in some instances responsive to streptomycin, to

Chloromycetin, and to combinations of sulfa drugs and streptomycin, and of dihydrostreptomycin and numbers of the broad spectrum group, is resistant in other instances to all forms of therapy now available.

Other great needs exist for agents effective against microbiologic forms causing disease states against which we have now no effective specific therapy, as: neurotropic viruses (as acute anterior poliomyelitis, encephalitis, rabies); epidemic influenza; and others due to larger, middle, and smaller sized viruses. Not one of the seven antibiotics is effective against fungal infections. Indeed, the problem of fungal infections (as moniliasis) is intensified by its reported occurrence in some patients receiving broad spectrum antibiotic therapy.

In addition to new antibiotics needed to fill such gaps, or better or more effective less toxic agents in other instances, the future will see extension of use of combinations of antibiotics and of antibiotics with other chemotherapeutic agents: already certain combinations are available, as of penicillin with dihydrostreptomycin which has been proved of well-defined value in the treatment of patients with subacute bacterial endocarditis, with urinary tract infections, and with staphylococcal infections. Also available now are other combinations, as of certain of the sulfa drugs with penicillin for oral administration; and still others now in the stages of clinical investigation may be expected to be in production and distribution in the not too distant future, if found to be clinically effective. The hazard in the use of such products lies in "shot-gun" therapy without thought and effort on specificity both of diagnosis and of therapy: such practices are mentioned only for purposes of condemnation.

Anticipating inquiry on the point, reference is made to reports of experimental work interpreted, on the bases of results of *in vitro* and *in vivo* (animal) studies, as evidence of antagonistic effects of Chloromycetin in the effectiveness of penicillin when the two are given in combination. Observations leading to such interpretation were made, on several different microorganisms, but the series is not extensive; however, of greater import, is the fact that clinical experience with combined penicillin and Chloromycetin therapy does not support the evidence presented in the experimental animal studies. Further work both in laboratory and in clinic will be necessary before clarification obtains.

Many gaps exist in the total array of microbiologic causative factors of disease when it is overlaid with the antimicrobial spectra of the seven antibiotics and other chemotherapeutic agents; the gaps are even more numerous when transposition is made from antimicrobial spectra to disease states. Staphylococcal infections have been mentioned:

infections of urinary tract and adnexae due to members of proteus and pseudomonas groups of gram negative bacilli constitute another series of infections only about half of which come to successful termination on treatment of the patient with available therapeutic agents including the broad spectrum antibiotics. Combinations of chemotherapeutic agents may be helpful: new antibiotics may offer greater promise; but the problem is not now completely solved.

As new antibiotics and other therapeutic agents are developed, solving existing problems, sometimes very satisfactorily, as with Chloromycetin in the treatment of patients with typhoid fever, other problems arise to challenge research and clinical investigation. In the instance just cited (typhoid fever) the carrier state is not easily or permanently eradicated by intensive Chloromycetin therapy, even though treatment of active disease is dramatically effective. Further, if diagnosis is made early, as by blood culture during the first few days, and treatment instituted early, the antigen-antibody reaction is disturbed with the result that the patient does not have the advantages thereof in recovery or in future protection against reinfection. These appear to be of even greater importance in patients with rickettsial fevers: indeed, they appear to be of such import that there may be justification for delay in institution of specific antibiotic therapy for a few days to permit the antigen-antibody reaction to proceed so that the patient may benefit therefrom, even at the expense of prolongation of his acute illness.<sup>2</sup>

The entire area of antibiotic therapy is complicated now through wider use also of adrenocorticotrophic hormone and cortisone. That both stimulative therapy with ACTH and replacement therapy with cortisone interfere with the antigen-antibody reaction is well known: also, that these substances mask disease states by alleviating symptoms and even some signs thereof, while underlying pathologic processes may not only not regress but may even progress, is appreciated also; perhaps not so obvious are problems that arise when antibiotic therapy is given patients under hormone therapy. Too little is known of roles played by these hormones and of the actions both of hormones and of antibiotics to permit of any other than experimental approach to combinations of hormone and antibiotic therapy.

In closing it seems inappropriate to attempt summarization of these comments: but it does seem worthwhile to invite attention to the need for extension of knowledge in the field of antibiotic therapy if full use is to be made of the remarkable advances offered by these agents. There must be recognition, also, of the fact that these agents do not make the practice of medicine easier or less

simple: there are those who have experienced the satisfaction of seeing dramatic and lasting benefit, even apparent cure, frequently, from heretofore devastating infection; but disappointing results also occur, not to overlook very difficult problems presented in the patient for example who has developed hypersensitiveness to sulfa drugs, to penicillin, to streptomycin, and to members of the broad-spectrum group, and who, though perhaps kept alive for a time, goes right on out with bacteremia involving *Escherichia coli*. Actually the converse is true: with progress the practice of medicine demands greater use of diagnostic acumen in specificity of diagnosis required for definition of specific therapy, so that we may say that practice, though more satisfying perhaps, becomes more complex and increasingly difficult, particularly for the generalist . . . the man in medicine's front line of service.

We live in a remarkable period in the development of medicine: realities of today were dreams of yesterday; hopes of today will come to fruition tomorrow. Advance is at such a rapid pace that no one human mind can grasp the total mass of newer knowledge; but you and I attempt to keep abreast of the newer knowledge that we may better serve society in our capacities as medical counsellors.

Perspective, with openmindedness, wholesome skepticism, adherence to principles, to ideals, to faith, constant effort toward keeping abreast of newer developments through continued education . . . these objectives we must embrace . . . to these we must hold fast . . . if progress is to be sound, and effective, and continued.

The fifth decade of the 20th century has brought great advances in medicine: those of the sixth in which we now live, will bring even more remarkable developments: you and I may yet see something resembling actual control of diseases of man in our lifetime.

<sup>1</sup> Waksman, Antibiotics and Chemotherapy, 1:1:1 (April) 1951.

<sup>2</sup> Woodward, Panel Session, American College of Physicians, Saint Louis Meeting, April, 1951.

#### POLIOMYELITIS

concluded from page 473

<sup>7</sup> Anderson, G. W., Anderson, G., Skaar, A. R., and Sandler, F.: The Risk of Poliomyelitis after Tonsillectomy, Ann. Otol., Rhin. & Laryng. 59:602-613, September 1950.

<sup>8</sup> Statement of the National Foundation for Infantile Paralysis, June 1951.

<sup>9</sup> Brahdly, M. B. and Katz, S. H.: Effect of Transportation on Severity of Acute Poliomyelitis, J. A. M. A. 146:772-774, June 30, 1951.

# The RHODE ISLAND MEDICAL JOURNAL

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## SOCIETY MEMBERSHIP

IN THIS ISSUE we publish the roster of Fellows of the Society. This year the effort has been made to add to the value of this roster list by adding the specialty designations after the names of physicians who limit their practice to one field. Information for this new feature has been secured from compilations by the American Medical Association, the directory of medical specialists, and the year-book of the American College of Surgeons. We aim for accuracy, but being human we realize that we are capable of errors. We only ask that any member listed in error kindly notify the executive office promptly so that correction may be made in any reprinting of this roster.

The publishing of the roster indicates the tremendous growth of membership in the past seven years, and by the same token the real interest in the work of the Society as an organization of individuals seeking to advance sound medical science, the promotion of the character, interests and honor of the medical fraternity, and the stimulation of activity for general public health and welfare in this State.

The concepts stated in the Society's charter and early rules and regulations have varied little in the 141 years of the organization. But the problems that face the physician today far exceed the ability of any one man, or any few men, to solve satisfactorily for the good of all the profession and the public. The challenge through the years to the individual doctor now requires the need of assistance

of other doctors working toward the same goal. Thus the organizational effort becomes paramount, and the accomplishment of the ideals of medical practice requires active participation in some manner or fashion of every member of the Society.

The task of serving on committees and councils, and as representatives of the Society to various organizations, must not be left to a few willing workers who answer all calls for service to the organization. The success of the Society rests on the volunteer service of the membership to assist in the carrying forward of our many activities. Any member should feel free to notify the officers of his willingness to serve on a committee.

## SCHOLAR — PHYSICIAN

Dr. John Fallon of Worcester was known to a good many Rhode Island physicians, and he was greatly admired by those who were at all intimately acquainted with him. His untimely death at fifty has shocked and sorrowed us. His career was so inspiring that we are moved to tell all our readers about him.

He was a brilliant and precocious student at Holy Cross without the tiring attributes so often associated with that second adjective. His training at Harvard, the Mayo Clinic and other places made him an able surgeon, the head of the Fallon Clinic.

The inspiring part of his character was that aside from being a well-educated and trained specialist, he had a cultured, broad-minded interest in



other things. The history and literature of medicine charmed him. He had collected at his delightful home in Shrewsbury a remarkable library, carefully arranged, and he knew it well in all its varied aspects. John Brown of Biggar, Oliver Wendell Holmes, Osler and Cushing were of his type.

As an essayist and writer of verse, he displayed great skill and taste. His modesty in these achievements was shown when on his being introduced to a surgical audience in Providence he was asked to preface his scientific talk by reciting his

#### Inscription for an Old Well

There was the privy, there the porker's pen,  
Here was the well and through this mossy  
head,  
Up rose the bucket stately, oaken, red,  
To slake the hearty thirsts of lusty men.  
Hard boiled, our sires. Their water should  
have been.

John, never obsessed by the importance of his own productions could not remember all the words and had to be coached by one of us.

We asked a surgical associate and friend of his in Worcester about him, and we can do no better than copy part of his reply.

"Remember the lines of Bacon":

"'Reading maketh a full man, conference a ready man, writing an exact man.'" John fulfilled these requirements.

1. John's library, both at home and at the Clinic, was unsurpassed. He never complained that he had not time to read.
2. He attended all kinds of medical meetings and conferences throughout the country and always fraternized with the recognized leaders of the profession.
3. You know his ability as a writer, not only on medical subjects, but as a writer of prose and poetry.

We lost a good friend and an excellent Surgeon."

#### PHILOLOGY NOTE

In an editorial in the July number of this Journal there was a reference to putting a reviewer, "on his metal." One of our medical friends, a careful reader and a student of words, has pointed out that in this phrase the last word is spelt "mettle." Recourse to Bartlett showed us that the writer given credit for this figure of speech is Molière, the French dramatist who in several of his plays has indulged in clever bantering at the expense of physicians. He undoubtedly would have taken a puckish delight to find a doctor led into error by following the sound rather than the spelling of a word.

Dropping Bartlett we took up the more ponderous but careful and exhaustive Webster. Here we find that "mettle" is a figurative use of the word

"metal", referring to the temper of the metal of a sword blade. In our childish carefreeness we are reminded of an aphorism we saw recently. Babies sometimes know by instinct what their mothers have forgotten long ago.

#### US TOO

An editorial in the New England Journal of Medicine, "Goodbye, Mr. Chips," discusses sadly the teaching now being given in medical schools. They point out that in order to be a professor one must show great ability in medicine and particularly in research. Whether or not one is able to teach appears to be a minor matter. This is distinctly contrary to nature. It is very evident that the perpetuation of the race takes precedence over everything else. Can we expect generations to develop expeditiously and efficiently without the help of proper guidance?

In the medieval universities students went from school to school as they learned of the presence of great teachers. Except in a limited way this cannot be done now. Of course Albert Jay Nock said, "One cannot be taught what one does not know already." This is a brilliant aphorism probably true of the geniuses he had in mind but most of the work of the world cannot be done by geniuses.

Within the memory of men still practicing there were great teachers. It certainly must be granted that Reginald Heber Fitz advanced medicine. Yet he was not above patiently instructing class after class under the dome of the old Bulfinch Building at the Massachusetts General Hospital. The N. E. Journal says "William Osler might have a difficult job in securing a professorship today if he were judged solely by the type of work he produced." Yet his teaching could inspire such a man as Harvey Cushing.

So much for the teaching at medical centers. How about the greater bulk of post-graduate teaching at medical meetings throughout the country? One of the outstanding surgeons of the country, a great pioneer, spoke here a few years ago. He was duller than dishwater. Few of the audience were really wide awake throughout his lecture. Two men from one of the great medical schools were here not long ago. The first is doing outstanding work, but his lecture is well described by this extract from a recent *Lancet*: "such faults as addressing the floor or ceiling, turning away from the audiences, fidgeting, staring and apparent surprise at a diagram one has just put up, mumbling, hesitating . . ." The other, just as able in his work on patients, was bright eyed, clear voiced, explicit in his statements. We got a lot out of his short talk.

Dr. Sturgis of Michigan, himself an ideal teacher, spent some days here as acting chief of service and gave several clinics. We were told that

*continued on next page*

he reported that instructors at Michigan have to take a course from the professor of elocution and learn how to communicate. We trust this rumor is correct and that the custom spreads. The word professor comes from the Latin and means a public teacher. We fear many of the present-day crop of teachers devoted themselves in college to pre-medical studies and share the modern contempt for the classics.

For the meeting of the Rhode Island Medical Society in September, some of the Society's limited funds were spent to make sure that the men on the program were not only brilliant in their work but were also pleasingly articulate.

### MALARIA WARNING

#### FEDERAL SECURITY AGENCY

Public Health SERVICE

Atlanta 5, Georgia

August 3, 1951

Dr. Edward A. McLaughlin  
State Director of Public Health  
State Department of Public Health  
Providence, Rhode Island

Dear Doctor McLaughlin:

Significant numbers of Armed Forces personnel from Korea are experiencing attacks of vivax malaria after their return to this country and while they are not under military supervision, i.e., while they are on leave or after separation. These individuals will undoubtedly be found in each State. Presumably these infections were acquired last fall though in some instances it is probable that symptoms were not manifested until this spring due to prolonged incubation or the effects of suppressive medication.

Therefore, the practicing physicians in your State should be warned (perhaps through your State medical journal) to suspect malaria among patients presenting suggestive signs and symptoms, and who have been in Korea during the last year. Definitive diagnosis should be based on the demonstration of malaria parasites in laboratories approved for this procedure by your State health department. The chances of discovering parasites are much better in thick blood films than in thin ones. Where blood findings are positive, controversial, or uncertain, the slides should be sent to the National Depository for Malaria Slides, Parasitology Laboratories, Communicable Disease Center, P.O. Box 185, Chamblee, Georgia, for further examination by non-governmental consultants.

Treatment with modern atimalarials now available (chloroquine, pentaquine, chlorguanide, etc.)

will alleviate symptoms promptly. Certain of the cases receiving complete courses of these drugs will remain free from malaria, but it is possible that others will relapse after weeks or months. Patients should be told of this possibility and advised to seek medical treatment again if symptoms recur. The likelihood of clinical reactivation becomes less with the passage of time; relapses are rare after the second or third attack.

To prevent the spread of malaria from these individuals, cases should be reported to local health authorities promptly so that residual insecticides may be applied to houses within a mile of parasite-positive persons if malaria vectors, *Anopheles quadrimaculatus* or *A. freeborni*, are known or found to be prevalent in the area.

If competent diagnosis, adequate treatment, prompt reporting, and preventive insecticiding are achieved, it is believed that the present freedom of this country from endemic malaria will be maintained.

It is hoped that you will bring this communication to the attention of the medical practitioners and health officers in your State. Supplementary information is attached.

Sincerely yours,

R. A. VONDERLEHR

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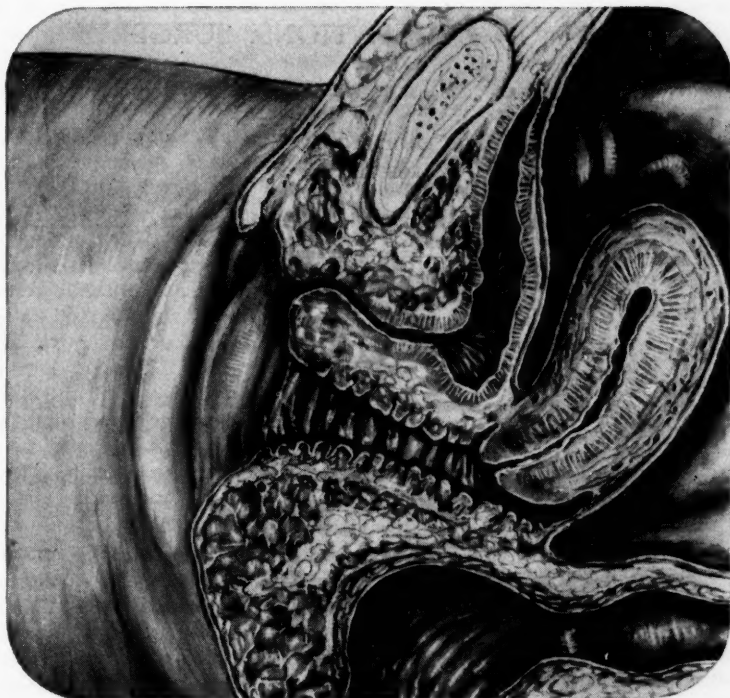
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## **SEARLE**

RESEARCH IN THE SERVICE OF MEDICINE

<sup>77</sup>Passmore, G. G.: Treatment of Discharges from the Vagina in Private Practice, North Carolina M. J. 11:487 (Sept.) 1950.

## ESSAYS ON OCCUPATIONS: SURGERY\*

JOHN FALLON, A.B., M.D., F.A.C.S., AM.BD.SURG., SC.D.

SURGEON, FALLON CLINIC AND ST. VINCENT HOSPITAL  
WORCESTER, MASS.

In 1946 John Fallon contributed to the Holy Cross *Tomahawk*, ESSAYS ON OCCUPATIONS: SURGERY.

This was so beautifully written and has so much of the genuine philosophy that medical men, as well as others, should understand, that we have asked for, and obtained, permission from the College of the Holy Cross in Worcester to reprint it, and we are including it in this copy of our Journal.

..... The Editor

THE PRACTISE OF SURGERY necessitates a slow preliminary preparation. Unfortunately deciding about it does, too. First you must decide whether to be a doctor at all: for surgery is only one of many mansions in the house of medicine.

Medical school and internship will spread before you a sample-kit of some 40 ways of being a doctor and nibbling at these will tell you better than any paper whether your flair is for internal medicine or surgery—or for neurophysiology or paleopathology or, indeed, whether it is for any specialty. General practice remains the kind of doctoring most liked by most doctors.

Medicine is a mixture of science and artistry, sometimes even art, within the broad definition of art as a human construction arousing noble emotion. The proportions vary in various branches. Health education is 98% artistry, physiologic chemistry 98% science and surgery half way between. Some branch must offer a mixture balanced to suit you, provided you have the fundamental interest in healing.

Have you any gift? Medicine is so broad that you can use it. If your strength is mathematics, there is biometrics; if faith, medical missions; if politics, medical legislation; if aviation, aeromedicine and so on to fantastic lengths. Thus, doctors have made important contributions because they had a taste for polar exploration, crystallography or Sanskrit. Your strength even may masquerade as a handicap. Doctors have contributed because they were colored, isolated in a wilderness or tuber-

culous. Mankind's universal "weakness" of repulsion from blood and suffering becomes the strongest force in medicine, once education has stiffened it from an emotion to a motive. That beaten body on the road from Jerusalem down to Jericho must have been repulsive to all three men who saw it. But the Samaritan was moved. Of the two ways of avoiding the sight of suffering, easing the suffering is no less esthetic than turning the back. Sensitiveness is part of a warm heart and should not keep you from medicine. But insensitiveness should.

Besides a cold heart there is one other absolute contraindication to being a doctor: any insufficiency in the department of honesty. Dishonesty beneath the imprimatur of a doctorate can be fatal on so wholesale a scale that the function of the medical school has come to be elimination almost as much as education. Dishonesty need not be abortion or narcotic vending. Subtler forms endanger more people: the snap diagnosis; the perfunctory examination; the unpracticed operation. Medical dishonesty derives not from ordinary rascality but from an inadequate sense of skepticism, especially self-skepticism. That is why it's hard to recognize in one's self. Tacitus said that men, as a rule, willingly believed what they wanted to believe: "*Fere libenter homines credunt id, quod credere volunt.*" In medicine credulity is homicide and "if the town's doctor be not a skeptic, its cemetery will be lumpy." The doctor should be skeptical of what the patient says and what he sees himself; of laboratory reports, X-rays, drugs, operations and the latest paper in this week's medical journal. If his skepticism wavers he may believe that natural ability, books and a few operations have made him a surgeon. Such a chap is likely to be surprised only by the autopsy.

If skepticism is the foundation stone of medicine, the Horatian drops of water which wear that stone down are laziness. To continue asking "Why?, Why?" takes energy. Skepticism does not flourish on a diet of mental lettuce and your true skeptic is a man of imagination and action. It is the cynic, not the skeptic, who stalls on dead center and medicine has no opening for this negative gentleman or the dilettante: medicine exacts positive de-

\* Reprinted from the Holy Cross College *Tomahawk*, Worcester, Mass. Issues of October 23 and 30, 1946. Copyright, 1946, *The Tomahawk*.



votion to an ideal. The star ground gainer of the team may or may not fit medicine, but medicine is pretty sure to fit the 4-year substitute. He, 40 years later, still may persist in asking "Why?"

Energy hot enough to keep flowing all the years and not congeal at four of a snowy morning is partly physical. Exhaustion of body breeds mistakes of judgment and if you inherit any constitutional lethargy or are corporeally non-enduring you should avoid medicine, at least its muscular branches like general practice, obstetrics and surgery. Not that the doctor need be a 10-second man. What is needed, physically and mentally, is the walker. The long walker.

What of the intellectual equipment for medicine? Of course, the more the merrier. But the Latin "doctor" connotes only learning, not brilliance. A quite ordinary cerebrum, if worked at capacity, is compatible with a full and useful life in medicine. As you grow older, listening to people sick enough to have parked their pretensions, you will find so much foolishness in the brilliant, so much sense in the "common" man that you will wonder whether thinking-power may not have been distributed in aliquots, with the end results varying as the rate of use. If your present teachers believe your own share to be sufficient a medical school probably will take you. An aggressive chap, rejected, might question the professors' decision. And proffs, to their joy, have been proven wrong before our era. But the way to prove it is not by becoming a graduate of a diploma mill or quack factory. What's mean about this gentry is not so much their offering a drowning man a straw or even sending his widow a bill for a life preserver, but the fact that they persuade him to choose the straw when a life preserver is handy. Not that medicine has a life preserver for every contingency. But it has a lot of them these days. We no longer grope with elixirs, electuaries and the power of suggestion. We often cure. If you fail of entering medicine and still are determined to heal, consider the perimedical fields: dentistry, laboratory technology, pharmacy, veterinary medicine. The annual Distinguished Service Award of the American Medical Association recently went to a veterinarian; Pasteur was an M.D. only by courtesy and a dentist discovered anesthesia.

Do you need a vocation to be a doctor? No compulsion need gnaw your vitals. Indeed, the subjective conviction of a divine mandate, accepted by its recipient as a substitute in whole or in part for training, has begotten our most successful charlatans. If in college you have shown enough interest to carry the extra load of your premedical studies you have enough interest to start medicine. Soon after the start, interest is likely to become addiction. If not, you can quit. A little medical training

may be helpful in other jobs. But you are unlikely to get into medicine unless you start early. One sympathizes with the fellow who never thought of medicine, took no premedical work and only too late realized that there is where his heart lay.

Now what of that specific part of medicine, surgery? Specific is a good word for surgery. It is direct, active, exact. But the romantic picture of the surgeon is about as close to life as that of the detective. Surgery overflows with romance, but not cinematic romance. And the surgeon you would want for your own operation is no flashing figure, cutting boldly, saving you by prestidigitation just before you "die on the table." In some 20,000 operations I remember seeing only two patients "die on the table." Sometimes the patient dies later unless the operation is bold, swift, maybe inventive. But operating is more precision and caution than courage. The routines—blocking and tackling—and the ordinary plays—hundreds of them—are repeated with constant polishing and constant guard against an opponent—carelessness, infection, hemorrhage—filtering through the line. Despite an occasional sweep or pass, most surgery is through the middle and its ideal is a guaranteed 5 yards. Razzle-dazzle is but perfection of precision, and the surgeon's character is nearest like the mother's: "Timmy, wear your rubbers." Parenthetically, I would remark that caution is not incompatible with courage: as a patient, the muscular, vigorous young man usually shows half the guts of his father, and his mother more than both together.

Operating is the dramatic and an essential fraction of surgery but there is much to surgery before and beyond operating. First of all, before he makes himself a surgeon, one must make himself a man by developing whatever nucleus the Lord gave him of common sense. The moral elements and broad culture of an arts college like Holy Cross seem to me a better mechanism for developing common sense than deeper study of a smaller segment of knowledge. Catholic or, I suppose, any religious education offers the candidate for surgery two specific concepts necessary for success—even financial success—which he otherwise might attain only in heartbreak and error: the sacredness of human life, the dignity of the individual.

Halfheartedness about these two ideas is illustrated by Germany. At the top fifty years ago, its surgery in the '30s was antiquated, inefficient, often brutal. To be fair, I should record my belief that the fault lay not in the German but in his selection of people to become doctors. For two generations German medicine had been a state monopoly. Who could be a doctor, what he could do, how he was promoted—all were determined politically. Many of the doctors, including the leaders, were just what you would expect politics to produce. Hitler ex-

*continued on next page*

tended the politics to include the patient, and the placard: "Only those who hail Hitler can enter here" appeared over hospitals as well as hofbraus. The historian, however, will allot little credit to Hitler: Bismarck planned all this, like so much else Hitler did. Bismarck invented state medicine. In 1878, when attempting to bring workmen's organizations under state control, he offered the attraction of free (i.e., taxpaid) medicine. The ruse succeeded and Bismarck recognized and developed the power in his new weapon. Should politics gain control of American medicine you should re-assay your own determination to be a doctor. My personal prophecy (take at your own risk!) is that state medicine is likely but will not brutalize your generation of doctors. It would be your sons' generation. And prohibition did not last that long: we are not a complaisant people. But I am wandering.

After learning first to be a man in college or maybe Iwo Jima, our budding surgeon learns the symptoms and courses, although not the treatment, of all the diseases a general practitioner knows. Within this clearing in the forest of ignorance he should construct his house of surgery, digging a foundation into the basic sciences of the body's structures, functions and reactions to disease. Upon the foundation is laid a first floor of theoretic acquaintance with all surgery, including its dozen subdivisions like surgery of the eye, anesthesia and the history of surgery. The next floor is a working knowledge—an intimate familiarity, as with the face of a friend—of his own section of surgery. Above the roof, which constantly must be raised, some surgeons erect a smaller box-like structure of knowledge in a minor subsection, and from this, occasionally, a spire of investigation may reach up into the fog of the unknown.

You will have noticed about this imaginary edifice firstly, that it resembles a church and, secondly, that it is impossible. But this does not disqualify the metaphor. It is well for the surgeon to feel some reverence for the body of knowledge he pursues. And he must continue to pursue after realizing that attainment is impossible: "There's joy in the climbing, not the goal but the climbing". Every branch of medicine needs idealism, but the surgeon can use an extra helping.

Let us cite a case. A patient comes with a boil. "Nick it", he says, "and get me back to work. I don't want any fol-de-rol". But you must take nothing for granted. He should be questioned, examined. The boil might be associated with diabetes. There might be coronary disease, with death waiting upon a careless "nick." To your stubbornness about full examination you will add whatever tact you possess because your responsibility to the patient includes education. The patient may call you a curmudgeon and, because you had to see his toes

to diagnose a boil on the neck, may believe you ignorant. But he will have had a square deal.

Sickness, often brings out the best in people, and most patients are grand persons. But assume this one patient is not. Assume too, that when he "permits" examination you find, besides the boil, an unrelated, unsuspected cancer. Now people are grateful, often more grateful than surgeons deserve, for relief from present suffering. But the best of mankind, threatened by future suffering, react with unreasoning dismay. The mind, to evade admitting the fact, may impugn either your integrity or ability, or it may admit the fact and transfer resentment of it to the person of the finder: you will remember the classic fate of messengers carrying news of defeat. Minds, as well as arms, can break with the sudden impact of weight and the diplomatic talk and sesquipedalianism needed in such a case beget the surgeon's deservedly Delphic reputation. But your responsibility is to cure, not please, the patient even if your insistence leads him to transfer responsibility to your own shoulders. Should such a patient have so much as a stitch abscess after operation, you may meet bitterness. For a good result you may hear, "He never had a sick day in his life until that doctor took out his gall-bladder and it's twenty years ago but he's never been the same man since. Sure, he works every day but he's got the ingrown toe nails". On the other hand if you wash your hands of his obstreperousness—if you abandon him to his fear—you will be a prophet when he dies. But you will not have applied idealism to surgery.

Idealism is needed in operating, which can be done either to get through with it or as perfectly as one's capacity allows. Take, for example, an operation for extensive yet removable cancer. One can operate so that the patient gets home and has some time before recurrence. This is operating for statistics. Or one can accept more risk and operate for permanent cure.

And idealism is needed in *not* operating. A patient who should not be operated upon may believe, with the urgency of unreasoning fear, that he should. Family, friends, his nurses, even the family doctor may agree. Operation would be more profitable, not just in dollars, but in reputation and good will. When the clamor grows, remember Kipling's mark of manhood:

"If you can keep your head when all about you  
Are losing theirs and blaming it on you—".

Idealism is peculiarly important for today's pre-medical student. Because it still may be possible for you to get into surgery through a closing back door. Until now a doctor, after only internship, could set up in general practice and teach himself more or less surgery upon the surgical fraction of his own

*continued on page 488*



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1. Friedlaender, S. and Friedlaender, A. S.: *Am. Pract.* 2:643, 1948

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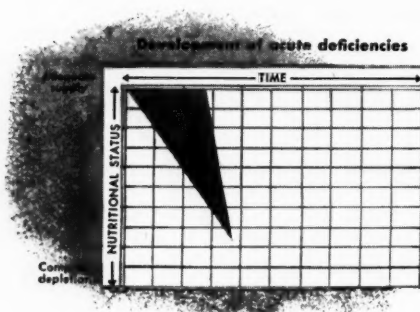
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## ESSAYS ON OCCUPATIONS: SURGERY

*continued from page 486*

## acute vitamin deficiencies

A sudden drop from adequate to grossly inadequate vitamin intake results in fast tissue depletion and functional changes. Ordinarily, physical lesions do not appear. If tissue depletion is rapid enough, death may ensue with slight or no morphologic variation.



### Treatment of acute deficiencies

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practice. Fifty years ago surgery was simpler and this sufficed. Gradually, residencies, fellowships and preceptorships developed but hospitals still accepted surgeons-by-declaration.

This back door produced a few of our best and most of our worst surgeons and those surest that its day is over are honest men who entered through it. Some hospitals specify that their surgeons must be certificated by the American Board of Surgery. This Board exacts at least 6 years of surgical training after medical school and a practice limited to surgery. It investigates the character and watches the operating of applicants and posts stiff examinations. Although a rare specimen from this mill reminds one

"How much the fool who hath been sent to Rome  
Exceeds the fool who hath been kept at home",

there are such stops and such competition all up the line that, as a rule, only safe men reach the finish.

The Board has been criticised as snobbish and as hard on the poor boy. Snobbery? Human lives, not teacups, are at stake. Hard on the poor boy? Let's analyze. To say it is better for an occasional poor boy to forego surgery than for his patients to die because he was unprepared would be true. But it would be surface thinking. A profession which measured new blood by a dollar scale soon would need transfusion. The only profession which tries it—Living on Father—proves it. Accordingly, surgeons-in-training are paid a subsistence wage and the long grind is just as possible, although less luxurious, for the poor as for the non-poor.

The financial returns of later years should balance the lean years, for the practice of surgery may be very profitable. Yet to choose surgery for money would be shortsighted. If you graduate from college at 22 you will be lucky to support a wife by 35. And to be alive at 65. For surgeons are short-lived and, surgery being hand work, those who reach old age cannot retire upon investment in the company or use of the name. The surgeon's earnings are concentrated in a few peak years and you know what modern taxes do to peaks; he cannot afford life insurance in the years when it is cheap; his earning years may be cut short by disabilities which would not handicap a headworker. It seems likely, too, that the amount of effort demanded by surgery would return a good income in any calling. Few successful surgeons have turned to other jobs. I know of only four, and each made more money.

Another half-truth about surgery is its social standing. Once the lowest form of medicine, surgery has acquired respectability, but factitious and moderate as this is, the surgeon cannot use it. Late parties and operations, elegant conversation and



scholarly thinking are immiscible. George Eliot's "Middlemarch" shows how a party-minded wife can strangle a medical career: read it before buying a diamond. Living with a surgeon takes less training but more talent than doing surgery. Neither Hitler's bovine hausfrau nor the socialite is likely to do so well as the capable, energetic girl who can manage her household and her life without leaning on a man who isn't there. But, if you'll forgive the step from professional to personal advice, remember that blue stockings still can be nylon and sensible girls try not to look that way.

There is something snobbish about distinguishing between professions and jobs. The surgeon shares with the machinist, the sculptor and other skilled tool-handlers a pride unknown to the executive, the confidence man and similar wit-workers. This is the third greatest reward of surgery and to the intellectual it may seem adolescent. But to the fellows who use the tools it brings a solid, masculine satisfaction. A mechanical imagination is desirable for surgery: the gadgeteering cast of mind helps solve the unprecedented at the operating table. But this is mental, not digital, and fingers which are all thumbs at your stage, after practice and Demosthenic tricks such as working blind-folded (no, not on patients) or at the bottom of a bucket, may make the best surgical hands.

The second reward of surgery comes from working in a rapidly advancing field. Journals, meetings, clinic trips and the generous comradeship of surgeons bring new windfalls of knowledge to save today the patient who yesterday was hopeless.

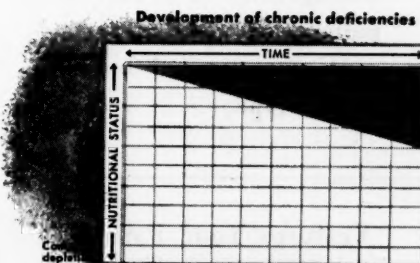
For that is the surgeon's first reward: saving life and stopping pain. Returning the youngster to his parents, the mother or the breadwinner to the children and making old age comfortable is corn only to the cold of heart. To warm hearts such adventures can bring, every day, an exaltation akin to the poet's or to the fierce, deep joy all of us shared the day war ended. This reward, of healing, reaches everyone in medicine but the surgeon most vividly. The researcher may save more people, but less personally. The obstetrician faces weaker opposition. Usually the internist's problems and results alike are a little less decisive. The surgeon sees the patient come in pain and danger; he sees him go relieved. This happens so often, although not often enough, that surgeons who forget Ambroise Paré are in danger of arrogance. Paré, great Huguenot surgeon of the 1500s, said: "I dress the wound, God heals it." (Je le pansay, Dieu le guerit.)

I cannot judicially compare surgery with non-medical jobs. My knowledge of them is casual, my affection is with surgery. I suspect that every man who puts his shoulder to it—engineer, teacher or whatever—thinks his job the best. But of the ordinary ways of life open to ordinary folks, only one

*concluded on next page*

## chronic vitamin deficiencies

When vitamin intake is just below the adequate, deficiencies develop slowly. As time goes on lesions appear. They are insidious in onset and slow in regression, even under intensive therapy. Many chronic lesions progress uneventfully. The patient accepts his ill-health as normal.



### Treatment of chronic deficiencies

Chronic deficiencies require prolonged therapy. At first treatment should be intensive. A much longer period of complete but less intensive treatment should follow. For a year after apparent recovery the patient should be given fully protective amounts of the essential nutrients.

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other than surgery, I believe in my prejudice, offers such demonstrable results in this world. And that one, motherhood, is closed to you and me.

#### READING LIST

##### FORMAL DISCUSSION

Sir William Osler: "Internal Medicine as a Vocation" in "Aequanimitas". Harvey Cushing: "The Medical Career". Robert Haven Schauffer: "What It Means To Be A Doctor" (McClure's Magazine, Feb. 1915). Richard C. Cabot: "Training And Rewards of the Physician". Lewellys F. Barker: "The Young Man And Medicine".

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John Brown: "Rab and His Friends". Ian Maclaren: "A Doctor of the Old School". Norman Duncan: "The Healer from Far-Away Cove" (Harper's Magazine, Oct. 1902). Augusta Tucker: "Miss Susie Slagle's". Faith Baldwin: "Medical Center". Dorothy Richardson: "The Book of Blanche". (I forget the authors): "Men in White". A. J. Cronin: "The Green Years". George Eliot: "Middle-march". Francis Brett Young: "Doctor Bradley Remem-bers". S. Weir Mitchell: "Dr. North and His Friends", "Characteristics". Stephen Vincent Benet: "Doc Mellhorn and The Pearly Gates" (in "Selected Works"). Robert Herrick: "Master of the Inn". William E. Henley: "In Hospital" (verse).

##### THE FINEST THING SAID ABOUT MEDICINE

Robert Louis Stevenson's Dedication of "Underwoods".

##### THE BEST BROAD PICTURE OF MEDICINE

Fielding H. Garrison's "Introduction to the History of Medicine".

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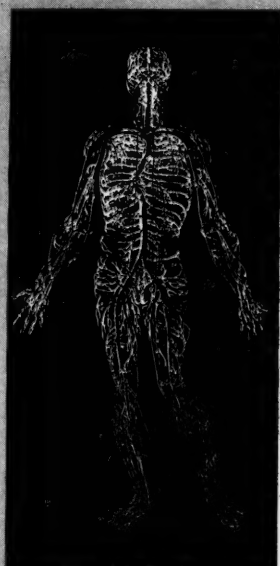
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### September 1, 1951

Where District Society is not listed after the name the Fellow is a member of the Providence Medical Association.

Telephone numbers have been checked with the latest available directories and every effort has been made to insure accuracy.

Any errors in this listing should be reported immediately to the Executive Office of the Society.

#### KEY TO SPECIALTIES

A—Allergy	I—Internal Medicine	Path—Pathology
ALR—Otolaryngology, Rhinology	Ind—Industrial Practice	Pd—Pediatrics
Anes—Anesthesiology	N—Neurology	PH—Public Health
Bact—Bacteriology	NS—Neurological Surgery	PL—Plastic Surgery
C—Cardiovascular Disease	OALR—Ophthalmology, Otolaryngology, Rhinology	PM—Physical Medicine
CP—Clinical Pathology	Ob—Obstetrics	PN—Psychiatry, Neurology
D—Dermatology	ObG—Obstetrics, Gynecology	Pr—Proctology
G—Gynecology	Oph—Ophthalmology	Pul—Pulmonary Diseases
GE—Gastroenterology	Or—Orthopedic Surgery	R—Roentgenology, Radiology
HAd—Hospital Administration	P—Psychiatry	S—Surgery
		U—Urology

Information compiled from the American Medical Association Directory, the Directory of Medical Specialists and the Yearbook of the American College of Surgeons.

The name of a physician who *limits his practice* to one field is marked with the appropriate symbol.

#### A

Abbate, Rocco, ( <i>Kent</i> ) 873 Warwick Avenue, Lakewood	HO 1-3323
Abramson, Lewis, ( <i>Newport</i> ) 280 Broadway, Newport (Pd)	Newport 5400
Adams, Frank M., 205 Slater Avenue (ALR)	GA 1-4183
Adelman, Maurice, 209 Angell Street, Providence 6 (Pd)	DE 1-9129
Adelson, Samuel, ( <i>Newport</i> ) 135 Touro Street, Newport (S)	Newport 784-W
Agnelli, Freeman B., ( <i>Washington</i> ) 25 Elm Street, Westerly	Westerly 2507
Alexander, George H., Butler Hospital, Providence 6 (PN)	GA 1-3456
Allen, Reginald A., 223 Thayer Street, Providence 6 (Pd)	GA 1-5552
Allin, Francis E., 2247 Mineral Spring Avenue, Centerdale 11	CE 1-0154-W
Anderson, Carl V., ( <i>Kent</i> ) Capt. M.C., U.S.A.A., Camp Edwards, Falmouth, Massachusetts	
Angelone, C. Thomas, 872 Park Avenue, Cranston 10	HO 1-3900
Angeloni, Tito, 406 Branch Avenue, Providence 4	DE 1-6676
Archetto, Angelo, 964 Cranston Street, Providence 9 (Anes)	EL 1-3717
Arciero, Michael, 225 Admiral Street, Providence 8	GA 1-7330
Arlen, Richard S., 359 Broad Street, Providence 7	DE 1-8210
Armington, Herbert H., 789 Broad Street, Providence 7	ST 1-4115
Ashton, George W., ( <i>Woonsocket</i> ) Harrisville	Pascoag 91
Ashworth, Charles J., 184 Angell Street, Providence 6 (S)	GA 1-4370
Astle, Christopher J., 278 Broad Street, Providence 3 (OALR)	GA 1-3167

#### B

Babcock, Henry H., 305 Blackstone Boulevard, Providence (PN)	GA 1-3456
Badway, Joseph M., 549 Broadway, Providence 9	UN 1-2400
Baldridge, Robert R., 192 Angell Street, Providence 6 (S)	GA 1-3448
Bandeian, Alice K., ( <i>Pawtucket</i> ) 210 Pine Street, Holyoke, Massachusetts	
Bandeian, John J., 1051 Elmwood Avenue, Providence (S)	GA 1-4624
Barber, Paul E., ( <i>Kent</i> ) 1022 Main Street, West Warwick	VA 1-2500-W
Barnes, Albert E., ( <i>Pawtucket</i> ) 491 Broad Street, Lonsdale	PA 5-1740
Baronian, Durtad R., 688 Cranston Street, Providence 7 (I)	WI 1-3310
Barr, Kathleen M., 605 Hope Street, Providence 6	GA 1-4114
Barrett, Harold S., 116 Lakewood Circle South, Manchester, Connecticut	
Barrett, John T., 122 Waterman Street, Providence 6 (Pd)	JA 1-2244
Barry, Ambrose G., ( <i>Pawtucket</i> ) 387 Broadway, Pawtucket	PA 3-4312



Bartley, James H., Jr., 7 Benefit Street, Providence 3	DE 1-6350
Batchelder, Philip, 129 Waterman Street, Providence 6 (R)	GA 1-2166
Batchelder, Walter E., 1035 Maple Avenue, Dowers Grove, Illinois	
Bates, Reuben C., 122 Waterman Street, Providence 6 (Pd)	GA 1-4233
Baute, Joseph A., (Kent) 4547 Post Road, East Greenwich	GR 1-0420W
Beardsley, J. Murray, 154 Waterman Street, Providence 6 (S)	UN 1-1880
Beaudin, Briand N., (Kent) 46 West Warwick Avenue, West Warwick	VA 1-0092
Beaudoin, Louis I., (Pawtucket) 710 Main Street, Pawtucket	PA 2-7696
Beaudreault, Elphege A., (Woonsocket) 441 South Main Street, Woonsocket	Woonsocket 4949
Beck, Irving A., 355 Thayer Street, Providence 6 (I)	UN 1-1452
Beckett, Francis H., 189 Waterman Street, Providence 6 (S)	GA 1-3342
Behrendt, Vera M., State Hospital, Howard (PN)	HO 1-3700
Bell, Duncan W. J., 211 Angell Street, Providence 6 (Pd)	DE 1-0159
Bellin, Leonard, 325 Angell Street, Providence 6 (Pd)	ST 1-3272
Bellino, Antonio, 341 Broadway, Providence 9	PL 1-2224
Benjamin, Emanuel W., 105 Waterman Street, Providence 6 (R)	JA 1-1441
Bernardo, John R., (Bristol) 342 High Street, Bristol	Bristol 319
Bernasconi, Ezio J., 726 Broad Street, Providence 7 (Oph)	WI 1-3212
Bernstein, Perry, 169 Angell Street, Providence 6 (ObG)	DE 1-5115
Berrillo, Anacleto, 409 Broadway, Providence 9	UN 1-6611
Bertini, Armando A., (Pawtucket) 9 Cottage Street, Pawtucket	PA 5-7329
Bertone, Virgilio M., (Woonsocket) 21 Hamlet Avenue, Woonsocket	Woonsocket 2560
Bestoso, Robert L., (Newport) 64 Touro Street, Newport	Newport 3036-W
Bird, Clarence E., 116 Waterman Street, Providence 6 (S)	GA 1-6363
Black, Edward J., 169 Angell Street, Providence 6	DE 1-6059
Blanchard, Howard E., 59 Elmwood Avenue, Providence 7 (ALR)	GA 1-2622
Bliss, Joseph A., Monument Square, Woonsocket	Woonsocket 3434-W
Blount, Samuel G., 207 Admiral Street, Providence 8	DE 1-5436
Bolotow, Nathan A., 126 Waterman Street, Providence 6 (ALR)	PL 1-4987
Bolster, John A., 243 Elmwood Avenue, Providence 7 (S)	DE 1-6270
Botvin, Morris, 155 Angell Street, Providence 6 (Oph)	UN 1-1210
Boucher, Paul E., (Woonsocket) 55 Hamlet Avenue, Woonsocket	Woonsocket 67-W
Boucher, Reginald H., (Pawtucket) 704 Main Street, Pawtucket	PA 3-5534
Bourn, Lucy E., 381 Angell Street, Providence 6	DE 1-1694
Bowen, Earl A., 669 Park Avenue, Cranston 10	HO 1-4130
Bowles, George E., 154 Waterman Street, Providence 6 (ObG)	DE 1-1898
Boyd, James F., 195 Angell Street, Providence 6 (R)	GA 1-1589
Bradshaw, Arthur B., 49 Beacon Avenue, Providence 3	GA 1-3852
Bray, Russell S., 454 Angell Street, Providence 6 (GE)	PL 1-2440
Brennen, Earle H., 58 John Street, East Providence 14	EA 1-0942
Breslin, Robert H., 1494 Broad Street, Providence 5	HO 1-3113
Brochu, Charles E., (Woonsocket) 38 Hamlet Avenue, Woonsocket (R)	Woonsocket 6174
Brothers, John H., 637 Smith Street, Providence 8	DE 1-4180
Brown, Abe A., 18963 Wisconsin, Detroit 21, Michigan	
Brownell, Henry W., (Newport) 10 Bull Street, Newport	Newport 512-W
Bruno, Paul C., (Bristol) 51 Church Street, Bristol	BR 1-0514
Bruno, Rocco, (Pawtucket) 193 East Avenue, Pawtucket	PA 3-4669
Bryan, Charles E., 425 Willett Avenue, Riverside 15	EA 1-0961-W
Buffum, William P., 122 Waterman Street, Providence 6 (A) (Pd)	GA 1-3446
Burgess, Alex M., 107 Bowen Street, Providence 6 (I)	DE 1-8154
Burgess, Alexander M., Jr., 454 Angell Street, Providence 6 (I)	PL 1-2440
Burke, Edward F., 410 Broadway, Providence 9	UN 1-5504, JA 1-2331
Burns, Francis L., 382 Broad Street, Providence 7 (ALR)	DE 1-1164
Burns, Frederic J., 5 Hillside Avenue, Providence 6 (I)	PA 5-1476
Burns, Louis E., (Newport) 24 Bull Street, Newport	Newport 39
Burrows, Ernest A., 116 Waterman Street, Providence 6 (N)	GA 1-3636
Burton, Kenneth G., 124 Waterman Street, Providence 6 (Or)	GA 1-0473
Butler, William J., 199 Angell Street, Providence 6 (R)	DE 1-0294
Buxton, Bertram, Jr., 167 Angell Street, Providence 6 (ObG)	GA 1-6431

## C

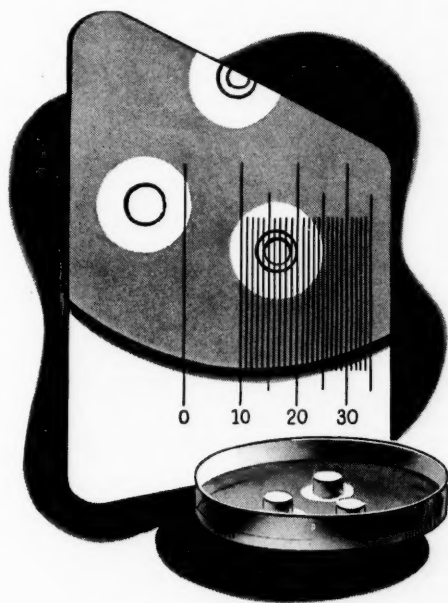
Caldarone, Alfred A., 104 Almy Street, Providence 9	UN 1-4482
Calder, Harold G., 224 Thayer Street, Providence 6 (Pd)	GA 1-1947
Calise, Domenico, 441 Broadway, Providence 9	UN 1-5529
Callahan, James C., (Newport) 10 Bull Street, Newport (S)	Newport 171
Cameron, Edward S., 82 Waterman Street, Providence 6 (S)	GA 1-1989
Campbell, Walter E., 224 Thayer Street, Providence 6 (PN)	GA 1-2324
Capalbo, Sylvester A., (Washington) 75 Woodruff Avenue, Wakefield	Narr. 414
Capobianco, Giovanni, 536 Admiral Street, Providence 8	GA 1-5819
Caputi, Anthony, 214 Kay Street, Newport (I)	Newport 5248
Capwell, Remington P., 32 Reservoir Avenue, Providence 7	WI 1-2255

Cardi, Alphonse R., 1303 Cranston Street, Cranston 9	EL 1-1836
Cardillo, Edward, 463 Broadway, Providence (ObG)	JA 1-2030
Carey, John E., (Newport) 33 Kay Street, Newport (ObG)	Newport 2121
Carney, Wilfred I., 154 Waterman Street, Providence (S)	JA 1-5541
Carroll, Robert E., 295 Angell Street, Providence 6 (I)	GA 1-7377
Case, Jarvis D., 203 Angell Street, Providence (ObG)	GA 1-3040
Cashman, Charles W., Jr., 270 Benefit Street, Providence 3 (S)	TE 1-3243
Castronovo, Joseph, 555 Broadway, Providence 9 (PH)	UN 1-6363
Catullo, E. Arthur, 1024 Chalkstone Avenue, Providence (Or)	EL 1-6858
Celestino, Pasquale J., (Washington) Main Street, Hope Valley	Hope Valley 154
Cella, Louis J., 514 Broadway, Providence 9	UN 1-3535
Cepi, Charles B., (Newport) 68 Narragansett Avenue, Jamestown (Anes)	Jamestown 8
Cerrito, Louis C., (Washington) 22 Elm Street, Westerly (G)	Westerly 4232
Chace, Robert R., 20 Ridge Road, Bronxville, N. Y. (Oph)	
Chafee, Francis H., 154 Waterman Street, Providence 6 (A)	GA 1-4645
Chapas, Benedict, 341 Smith Street, Providence 8 (Anes)	DE 1-2925
Chapian, Mihran A., 173 Waterman Street, Providence 6 (U)	GA 1-0913
Chapman, James G., 1154 Lonsdale Avenue, Central Falls	PA 5-7340
Charon, George E., Surgeon's Office, Hqs. 4th Infantry Division, APO 39, New York, New York	
Chase, Peter P., 122 Waterman Street, Providence 6 (S)	GA 1-5023
Chaset, Nathan, 105 Keene Street, Providence 6 (U)	UN 1-8979
Chesebro, Edmund D., Theinert House, Greenville, R. I.	
Chimento, Dominic, (Washington) 9 Granite Street, Westerly	Westerly 2306
Cianci, Vincent A., 54 Pocasset Avenue, Providence 9	TE 1-3395
Ciarla, Philomen P., (Newport) 105 Pelham Street, Newport	Newport 531
Cicma, Haralambie G., 63 Angell Street, Providence 6 (D)	GA 1-8485
Cinquegrana, Oswald, 774 North Broadway, East Providence	EA 1-4245
Clark, Samuel D., (Bristol) 209 Hope Street, Bristol	BR 1-0003-W
Clarke, B. Earl, St. Luke's Hospital, New York (Path)	
Clarke, Elisha D., 109 North Richhill Street, Waynesburg, Pennsylvania	
Clarke, Elliott M., (Pawtucket) 228 Central Street, Central Falls	PA 5-4450
Clarkin, Arthur J., 199 Thayer Street, Providence 6 (U)	GA 1-7368
Clune, James P., 156 Auburn Street, Cranston 10	HO 1-1900
Cohen, Earle F., 176 Waterman Street, Providence 6 (Pd)	JA 1-5100
Cohen, Leo, 164 Prairie Avenue, Providence 5	GA 1-3326
Cohen, Paul, (Woonsocket) 99 Main Street, Woonsocket	Woonsocket 6117-R
Cohen, William B., 105 Waterman Street, Providence 6 (D)	GA 1-0843
Colagiovanni, Marco, 288 Broadway, Providence 3	GA 1-5894
Collom, Harold L., (Kent) 3235 Post Road, Apponaug	HI 1-1214
Conde, George F., 67 Academy Avenue, Providence 8	EL 1-2313
Congdon, Palmer, 454 Angell Street, Providence 6 (I)	PL 1-2440
Conlon, Leo V., (Woonsocket) 113 Main Street, Woonsocket, (S)	Woonsocket 2482-W
Connor, Hilary H., 264 Reservoir Avenue, Providence (Pd)	WI 1-5130
Conrad, E. Victor, 666 Elmgrove Avenue, Providence (S)	PL 1-1894
Conte, Alfred C., 540 Charles Street, Providence 4	GA 1-8895
Cook, Paul C., 1451 Broad Street, Providence 5 (I)	WI 1-4412
Cooke, Charles O., 167 Power Street, Providence 6 (S)	GA 1-3538
Corcione, Mary B., 409 Broadway, Providence 9	JA 1-1787
Corrigan, Francis V., 613 Angell Street, Providence 6 (Pd)	GA 1-1347
Corsello, Joseph N., 331 Broadway, Providence (I)	GA 1-4333
Corvese, Anthony, 243 Broadway, Providence 3 (S)	DE 1-7677
Cox, James H., 141 Waterman Street, Providence 6 (Oph)	GA 1-6336
Crane, G. Edward, 223 Thayer Street, Providence 6 (Or)	GA 1-5324
Crank, Rawser P., 765 Park Avenue, Cranston 10 (CP)	WI 1-1614
Crepeau, George A., (Woonsocket) 34 Hamlet Avenue, Woonsocket (Pd)	Woonsocket 3102-W
Croce, Gene A., 195 Waterman Street, Providence 6 (ObG)	GA 1-8722
Cronick, Charles H., R. I. State Hospital for Mental Diseases, Howard (PN)	HO 1-4700
Cuddy, Arthur B., 512 Pontiac Avenue, Cranston 10 (ObG)	WI 1-5249
Cummings, Frank A., 169 Angell Street, Providence 6 (GE)	DE 1-6622
Curran, Edmund B., 156 Elmwood Avenue, Providence (S)	JA 1-5951
Curren, L. Addison, 789 Park Avenue, Cranston 10	WI 1-1568
Cutts, Frank B., 154 Waterman Street, Providence 6 (I)	GA 1-2664
Cutts, Katherine K., 9 Irving Avenue, Providence 6 (Pd)	PL 1-4772
Cutts, Morgan, 154 Waterman Street, Providence 6 (I)	DE 1-3427
Czekanski, Andrew G., (Pawtucket) 300 Broad Street, Pawtucket (I)	PA 6-7225

## D

Damarjian, Edward, 124 Waterman Street, Providence 6 (Anes)	GA 1-1808
D'Angelo, Antonio F., (Bristol) 99 State Street, Bristol	BR 1-0761
Darrah, Harry E., 42 Woodbury Street, Providence 6 (Anes)	DE 1-1035

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In general, "... penicillin continues to be the antibiotic of choice for ... all gram-positive infections due to staphylococci, hemolytic streptococci, pneumococci ... all cases of gonorrhea and syphilis."<sup>2</sup>

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"Penicillin, relatively inexpensive and of low toxicity ..." "... in aqueous solution ... is cheap and rapid acting ..." "Procaine penicillin ... in aqueous suspension ... most economical for routine hospital use."<sup>4</sup>

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# MERCK PENICILLIN PRODUCTS

1. Pratt, R. and Dufrenoy, J., *Antibiotics*, J. B. Lippincott Company, Philadelphia, 1949, p. 30.
2. Keefer, C. S., *Postgraduate Medicine* 9: 101, Feb. 1951.
3. Goldstein, A.: Antibacterial chemotherapy, *N. England J. Med.* 240: 137-147, Jan. 27, 1949.
4. Flippin, H. F. and Israel, H. L., *Mod. Med.* p. 69, Feb. 15, 1951.



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Davis, George W., 1732 Broad Street, Edgewood 5 (ObG)	WI 1-2433
Davis, William P., 182 Waterman Street, Providence 6 (S)	DE 1-1536
Deery, James P., 331 State Office Building, Providence 2 (PH)	JA 1-7100
DeFusco, Bruno G., 189 Broadway, Providence (Pd)	UN 1-4509
DeLuca, Joseph, 158 Governor Street, Providence 6 (S)	PL 1-2243
Denhoff, Eric, 187 Waterman Street, Providence 6 (Pd)	GA 1-1837
DeNyse, Donald L., 922 Park Avenue, Cranston 10 (I)	WI 1-2266
DeStefani, Carlo J., ( <i>Woonsocket</i> ) 689 Wood Avenue, Woonsocket	Woonsocket 6563-W
Devere, Frederick H., 677 Park Avenue, Cranston 10	HO 1-0242
DeWolf, Halsey, 305 Brook Street, Providence 6 (I)	GA 1-5484
Dileone, Ralph, 223 Broadway, Providence 3 (ObG)	GA 1-3468
Dillon, John A., 154 Waterman Street, Providence 6 (I)	UN 1-2323
DiMaio, Michael, 415 Angell Street, Providence 6 (I)	JA 1-6682
Dimmitt, Frank W., 78 Waterman Street, Providence 6 (OALR)	GA 1-2886
DiPippo, Palmino, 1536 Westminster Street, Providence 9	TE 1-1567
Dolan, Thomas J., 60 South Angell Street, Providence 6	GA 1-5610
Donley, John E., 222 Broadway, Providence 3 (PN)	UN 1-1313
Donnelly, John J., 603 Broad Street, Providence 7	PL 1-2310
Dotterer, Charles S., ( <i>Newport</i> ) 193 Waterman Street, Providence (OALR)	DE 1-8433
Doucet, Charles S., ( <i>Pawtucket</i> ) 615 Broad Street, Central Falls	PA 5-7041
Dougherty, Edward F., 6374 7th Ave. N., St. Petersburg, Florida	
Dowling, Joseph L., 57 Jackson Street, Providence 3 (Oph)	GA 1-3552
Dowling, Richard H., ( <i>Woonsocket</i> ) 128 Main Street, Woonsocket	Woonsocket 167-W
Drew, Robert W., ( <i>Bristol</i> ) 10 Broad Street, Warren	WA 1-1490-W
Duckworth, Milton, ( <i>Washington</i> ) Carolina	Carolina 17R2
Duffy, Frank P., 372 Pontiac Avenue, Cranston 10	ST 1-6322
Dufresne, Walter J., ( <i>Pawtucket</i> ) 168 West Avenue, Pawtucket (ObG)	PA 3-3996
Dugas, Leo, ( <i>Woonsocket</i> ) School Street, Slatersville	Woonsocket 122-W
D'Ugo, William P., 282 Broadway, Providence 3	GA 1-0151
Dunbar, Charles W., ( <i>Bristol</i> ) 10 State St., Warren	WA 1-2230
Dupre, Guyon, 80 Hamlet Avenue, Woonsocket	Woonsocket 826
Duquette, Leo H., ( <i>Kent</i> ) 1044 Main Street, West Warwick	VA 1-0774
Durkin, Patrick A., ( <i>Pawtucket</i> ) 459 Central Avenue, Pawtucket	PA 2-8263
Durkin, Walter R., 111 Waterman Street, Providence 6 (ObG)	DE 1-2224
Dustin, Cecil C., R. F. D. 1, Box 151, Rochester, New Hampshire (I)	
Dwyer, George J., 796 Atwells Avenue, Providence 9	TE 1-2615
Dziob, John S., 148 Blackstone Blvd., Providence 6 (S)	DE 1-7360

## E

Earley, Charles P., 388 Prairie Avenue, Providence 5	HO 1-9285
Eckel, Frederick C., ( <i>Washington</i> ) 41 Grove Avenue, Westerly	Westerly 2297
Eckert, George A., ( <i>Newport</i> ) 130 Touro Street, Newport (S)	Newport 35-W
Eckstein, Adolph W., 76 Waterman Street, Providence 6 (S)	GA 1-0767
Eddy, Augustine W., ( <i>Woonsocket</i> ) 42 Hamlet Avenue, Woonsocket (Or)	Woonsocket 207-W
Eddy, Jesse P., 3rd, 131 Waterman Street, Providence 6 (S)	PL 1-4044
Egan, Thomas A., 156 Smith Street, Providence 8 (Anes)	DE 1-9414
Eliot, Alice M. B., Adams Point, Barrington	WA 1-0857
Emidy, H. Lorenzo, ( <i>Woonsocket</i> ) 188 Prospect Street, Woonsocket (Pd)	Woonsocket 92
Erinakes, Peter C., ( <i>Kent</i> ) 1425 Main Street, West Warwick	VA 1-0896
Ethier, Wilfrid V., 1180 Social Street, Woonsocket	Woonsocket 7820

## F

Fagan, James H., 230 Thayer Street, Providence 6 (S)	GA 1-7242
Fain, William, 249 Thayer Street, Providence 6 (I)	GA 1-7271
Falkinburg, LeRoy W., Roger Williams General Hospital, Providence (Path)	GA 1-1625
Fallon, James T., Columbus Hospital, Great Falls, Montana (Path)	
Famiglietti, Edward V., 77 Brown Street, Providence 6 (S)	UN 1-0023
Fanger, Herbert, R. I. Hospital, Providence (Path)	DE 1-4300
Farago, Samuel S., ( <i>Washington</i> ) 101 West Broad Street, Westerly (S)	Westerly 2432
Farrell, Charles L., ( <i>Pawtucket</i> ) 166 Pawtucket Avenue, Pawtucket	PA 3-4141
Farrell, George B., ( <i>Kent</i> ) 1018 Main Street, West Warwick	VA 1-0038
Farrell, Irving A., ( <i>Pawtucket</i> ) 428 Broad Street, Central Falls	PA 5-3575
Feifer, Anthony M., 547 Broadway, Providence 9	UN 1-3915
Feinberg, Banice, 225 Waterman Street, Providence 6 (Pd)	UN 1-2242
Felderman, Jacob, 64 Burnside Street, Providence	JA 1-5050
Femino, Richard D., 666 Douglas Avenue, Providence 8	UN 1-1433
Ferguson, Duncan H. C., Jr., ( <i>Pawtucket</i> ) 124 Waterman Street, Providence 6	GA 1-1808
Ferguson, John B., 205 Broad Street, Providence 3 (S)	GA 1-2799
Ferrara, Bernard F., 211 Webster Avenue, Providence 9	EL 1-6008



Ferrucci, Domenic P., ( <i>Woonsocket</i> ) 80 Hamlet Avenue, Woonsocket	Woonsocket 826
Fershtman, Max B., 708 Park Avenue, Cranston 10	WI 1-4346
Fidanza, Antonio G., 234 Pocasset Avenue, Providence 9	EL 1-0421
Field, Eugene A., 112 Waterman Street, Providence 6 (R)	GA 1-5016
Fischer, William J. H., Jr., 154 Waterman Street, Providence 6 (I)	GA 1-2676
Fish, David J., 355 Thayer Street, Providence 6 (PN)	JA 1-9012
Fish, Vera J. W., 29 Lincoln Avenue, Providence 6 (PN)	TE 1-2225
Fishbein, Jay N., 221 Angell Street, Providence 6 (ALR)	GA 1-3452
Fitts, Fernald C., ( <i>Washington</i> ) c/o Chance Vought Aircraft, Dallas, Texas	
Fitzpatrick, Walter F., Jr., USN Receiving Station, Norfolk, Virginia	
Fleischl, Herbert, Exeter School, Lafayette	Wickford 4
Fletcher, Donald B., ( <i>Newport</i> ) Newport Hospital, Newport (R)	Newport 410
Fletcher, Henry B., 154 Waterman Street, Providence 6 (Or)	GA 1-4518
Fletcher, William, 513 Industrial Trust Bldg., Providence	GA 1-9230
Flynn, Joseph C., 559 Cranston Street, Providence 7	EL 1-2221
Flynn, Thomas S., ( <i>Woonsocket</i> ) 11 Monument Square, Woonsocket	Woonsocket 908-W
Fogarty, Thomas F., 224 Thayer Street, Providence 6 (ObG)	GA 1-0217
Foley, William H., 810 Broad Street, Providence 7	WI 1-2727
Fontaine, Aurey, ( <i>Woonsocket</i> ) 52 Hamlet Avenue, Woonsocket	Woonsocket 246
Forget, Ulysse, ( <i>Bristol</i> ) 600 Main Street, Warren (OALR)	WA 1-0070
Forgiel, Ferdinand S., 162 Angell Street, Providence (U)	EL 1-1103
Fortunato, Stephen J., 425 Plainfield Street, Providence 9 (Anes)	EL 1-0057
Foster, Edward, ( <i>Pawtucket</i> ) 569 Power Road, Pawtucket (I)	PA 3-0477
Fox, A. Henry, 518 Willett Avenue, East Providence 15	EA 1-3372
Fox, G. Raymond, ( <i>Pawtucket</i> ) 209 Broadway, Pawtucket (S)	PA 5-8621
Franklin, Joseph, 217 Elmwood Avenue, Providence 7 (ObG)	GA 1-7348
Fratantuono, Frank D., 106 Vinton Street, Providence 9	PL 1-4493
Freedman, David, 224 Thayer Street, Providence 6 (S)	DE 1-0042
Freedman, Stanley S., 183 Waterman Street, Providence 6 (A) (Pd)	DE 1-8447
Frumson, Solomon L., ( <i>Woonsocket</i> ) 15 Hamlet Avenue, Woonsocket	Woonsocket 719-R
Fuhrmann, Louis J., 933 Chalkstone Avenue, Providence 8 (ObG)	PL 1-4539
Fulton, Frank T., 124 Waterman Street, Providence 6 (I) (C)	GA 1-3111
Fulton, Marshall, 124 Waterman Street, Providence 6 (I) (C)	GA 1-3111

G

Gale, Elmer T., ( <i>Washington</i> ) 5 Robinson Street, Narragansett	Narragansett 800-W
Gallagher, Henry J., 386 Smith Street, Providence 8	DE 1-5967
Gammell, Edwin B., 441 Angell Street, Providence 6 (ALR)	JA 1-1177
Gannon, Charles H., 23 Holburn Avenue, Cranston 10	ST 1-4614
Garrison, Norman S., ( <i>Washington</i> ) Box 547, Westerly (R)	Watch Hill 52-3
Garside, Francis V., 154 Francis Street, Providence 3 (S)	DE 1-7572
Gaudet, Albert J., ( <i>Pawtucket</i> ) 592 Smithfield Avenue, Pawtucket	PA 2-4995
Gauthier, Henri E., ( <i>Woonsocket</i> ) 34 Hamlet Avenue, Woonsocket (S)	Woonsocket 393-325
Gerber, Isaac, 10 Leicester Way, Pawtucket (R)	PA 5-5578
Geremia, Albert E., 172 Pocasset Avenue, Providence 9 (C)	EL 1-9251
Gershman, Isadore, 343 Thayer Street, Providence 6 (Pd)	GA 1-1551
Giannini, Pio, 448 Broadway, Providence 9	UN 1-3860
Gibson, J. Merrill, 185 Angell Street, Providence 6 (S)	UN 1-1243
Gilbert, John J., 209 Angell Street, Providence 6 (OALR)	GA 1-1584
Giles, William P., 480 Lowell Avenue, Newtonville, Mass. (S)	
Gillis, Nora P., 189 Governor Street, Providence 6	GA 1-3215
Gilman, John F. W., 124 Waterman Street, Providence 6 (I)	GA 1-3111
Giunta, Frank, 203 Thayer Street, Providence 6 (Pd)	DE 1-5666
Giura, Arcadie, ( <i>Bristol</i> ) 31 Washington Street, Warren	WA 1-0680
Goldowsky, Seebert J., 209 Angell Street, Providence 6 (S)	UN 1-1707
Goldstein, Sidney S., West Kingston (PN)	Narragansett 1160 R 4
Golini, Carlotta N., 371 Broadway, Providence 9 (ObG)	UN 1-6603
Gongaware, Hartford P., ( <i>Washington</i> ) 17 Granite Street, Westerly (S)	Westerly 2246
Gordon, Calvin M., 211 Angell Street, Providence 6 (ObG)	GA 1-4555
Gordon, John H., ( <i>Pawtucket</i> ) 47 Cottage Street, Pawtucket (Or)	PA 3-4134
Gordon, Walter C., 116 Princeton Avenue, Providence 7	JA 1-4040
Grady, John P., 270 Elmwood Avenue, Providence (Pd)	DE 1-4034
Granata, Tancredi G., 347 Broadway, Providence 9	DE 1-0281
Granger, Eugene N., Pascoag	Pascoag 80
Greason, Thomas L., 677 Broad Street, Providence 7 (PN)	UN 1-3355
Greenstein, Jacob, 143 Prairie Avenue, Providence 5 (I)	GA 1-1969
Gregory, Kalei K., 255 Hope Street, Providence 6 (Pd)	DE 1-2459
Grimes, M. Osmond, ( <i>Newport</i> ) 57 Kay Street, Newport (Oph)	Newport 2824
Grossman, Herman P., 210 Angell Street, Providence 6 (Oph)	DE 1-2433
Grzebień, Stanley T., 681 Smith Street, Providence 8	DE 1-3334
Grzebień, Thomas W., 187 Academy Avenue, Providence 8 (G)	TE 1-1637

## H

Hacking, Raymond F., 105 Waterman Street, Providence 6 (Oph).....	GA 1-1613
Hackman, Edmund T., (Kent) 10 Post Road, Warwick 5.....	WI 1-2883
Hagenow, LeRoy K., (Kent) 3103 Post Road, Apponaug (Pul).....	HI 1-2228
Hager, Herbert F., 203 Thayer Street, Providence 6 (I).....	GA 1-0581
Hager, Russell, (Kent) 6 Post Road, Edgewood.....	ST 1-2040
Hall, Hugh J., 1283 North Main Street, Providence 4.....	GA 1-1162
Halliwell, Harry L., (Woonsocket) 18 Monument Square, Woonsocket.....	Woonsocket 7510-W
Ham, John C., 154 Waterman Street, Providence 6 (I).....	GA 1-5111
Hamilton, James, 349 Hope Street, Providence 6 (Path).....	GA 1-4646
Hamlin, Hannibal, 270 Benefit Street, Providence 6 (NS).....	UN 1-2630
Hammond, Roland, 41 Boylston Avenue, Providence 6 (Or).....	PL 1-5949
Hanley, Francis E., (Pawtucket) 336 North Broadway, Providence 16.....	EA 1-1236
Hanley, Henry J., (Pawtucket) 67 Park Place, Pawtucket (S).....	PA 5-7743
Hanna, Louis E., (Pawtucket) 164 Central Avenue, Pawtucket.....	PA 5-7392
Hanson, F. Charles, 162 Angell Street, Providence 6 (Oph).....	GA 1-9234
Happ, Linley C., 170 Waterman Street, Providence 6 (OALR).....	GA 1-6855
Hardiman, James F., 432 Public Street, Providence 7.....	HO 1-6500
Hardman, Margaret S., 46 Armington Avenue, Providence 8.....	
Hardy, Arthur E., (Kent) 2 Post Road, Pawtucket 5 (S).....	HO 1-9212
Harley, Benjamin F., Flower-Fifth Avenue Hospital, Fifth Avenue at 105th Street, New York, New York.....	
Harrington, Peter F., 249 Hope Street, Providence 6 (I).....	DE 1-2200
Harris, Herbert E., 219 Waterman Street, Providence 6 (Or).....	GA 1-1721
Harrop, Joseph K., (Kent) 712 Washington Street, West Warwick.....	VA 1-1233
Harvey, N. Darrell, Pelham, N. Y. (OALR).....	
Hascall, Theodore C., 48 Lincoln Avenue, Riverside 15.....	EA 1-0020
Hathaway, Clifford S., (Washington) 38 Lake Street, Wakefield.....	Narragansett 640
Haverly, Richard E., 841 Hope Street, Providence 6.....	GA 1-9825
Hawkins, Joseph F., 197 Waterman Street, Providence 6 (OALR).....	GA 1-2552
Hayes, Robert C., (Pawtucket) Camp Pickett, Virginia.....	
Hayes, Walter E., 1103 Cranston Street, Cranston 9.....	EL 1-4480
Healey, James P., (Pawtucket) 208 Broad Street, Pawtucket.....	PA 2-7005
Hecker, Harry, (Pawtucket) 172 East Avenue, Pawtucket (I).....	PA 2-9395
Hefferman, Edward V., U. S. Naval Hospital, Portsmouth, Virginia.....	
Hemond, Fernand J., (Kent) 12 St. John Street, West Warwick.....	VA 1-0019
Hennessey, Kieran W., (Pawtucket) 520 East Avenue, Pawtucket.....	PA 5-0948
Henry, Albert C., (Washington) West Main Street, Wickford.....	Wickford 409
Henry, Robert T., (Pawtucket) 18 Exchange Street, Pawtucket (Or).....	PA 3-9366
Hill, Prescott T., 225 Broad Street, Providence 3 (Pul).....	DE 1-0191
Hindle, Joseph A., 655 Broad Street, Providence 7 (I).....	DE 1-6310
Hindle, William V., 655 Broad Street, Providence 7 (Or).....	DE 1-6311
Hoey, Waldo O., 295 Angell Street, Providence 6 (S).....	PL 1-1300
Hogan, John F., 76 Spring Street, Pawtucket.....	PA 5-0846
Hogan, John P., State Sanatorium, Wallum Lake.....	Pascoag 22
Holdredge, Bertram L., 685 Broad Street, Providence 7.....	JA 1-2554
Holdsworth, Hubert, (Bristol) 132 High Street, Bristol.....	BR 1-1323
Hollingworth, Arthur, Hope Road.....	Scituate 1-5528
Honan, Frank J., 116 Governor Street, Providence 6.....	GA 1-9076
Horan, William A., 319 Broad Street, Providence 7 (Or).....	GA 1-1251
Horvitz, Abraham, 111 Waterman Street, Providence 6 (S).....	JA 1-9432
Horwitz, Manuel, 407 Brook Street, Providence 6 (R).....	GA 1-5415
Houghton, Montafix W., 2 Seabridge Street, Uxbridge, Massachusetts.....	
Houston, Craig S., 195 Angell Street, Providence 6 (ObG).....	GA 1-6886
Howrie, William C., Jr., 154 Waterman Street, Providence 6 (Anes).....	GA 1-0026
Hudson, Royal C., (Kent) 1225 Main Street, West Warwick.....	VA 1-1313
Hughes, Stephen F., (Pawtucket) 33 Main Street, Pawtucket.....	PA 2-6828
Hughes, William N., 112 Waterman Street, Providence 6 (PN).....	GA 1-1431
Hunt, Russell R., 8 Kensington Road, Cranston 5 (R).....	HO 1-7208
Hunt, William W., 93 Warren Avenue, East Providence 14.....	EA 1-0031
Hyer, Harrison F., 1 Grove Avenue, East Providence.....	EA 1-5490

## I

Iavazzo, Anthony A., 227 Laurel Hill Avenue, Providence 9.....	TE 1-2620
Indeglia, Pasquale V., 451 Broadway, Providence 9.....	UN 1-6070
Israel, Cyril, (Woonsocket) 18 Monument Square, Woonsocket.....	Woonsocket 3891-R

## J

Jackvony, Albert H., 339 Elmwood Avenue, Providence 7 (S).....	HO 1-1141
Jacobs, Harry, (Woonsocket) Main Street, Pascoag.....	Pascoag 590
Jacobson, Frank J., 78 Waterman Street, Providence 6 (Pd).....	UN 1-6626
Jadosz, Frank C., 1300 Elmwood Ave., Cranston.....	WI 1-1223



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\*Wilbur, D. L.: Principles in the  
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min Deficiency Diseases. Gastro-  
enterology, 1:179, Feb., 1943.

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Jaworski, Rudolf A., ( <i>Pawtucket</i> ) 765 Broadway, Pawtucket	PA 5-1201
Jerech, Henrietta K., ( <i>Newport</i> ) 248 Broadway, Newport	Newport 398
Jeremiah, Bert S., ( <i>Pawtucket</i> ) 614 East Avenue, Pawtucket (PL)	PA 3-3216
Johnson, William J., ( <i>Washington</i> ) 26 North Road, Kingston (PN)	Narragansett 552-M
Johnston, Joseph C., 369 Broad Street, Providence 7	GA 1-9885
Jones, Henry A., 506 Pontiac Avenue, Cranston 10	WI 1-3420
Jones, John P., ( <i>Washington</i> ) 127 Main Street, Wakefield (S)	Narragansett 3
Jones, Walter S., 165 Waterman Street, Providence 6 (ObG)	GA 1-8551
Jordan, Harmon P. B., 50 Maude Street, Providence 8 (HAD)	DE 1-3200
Jordan, William H., 570 Broad Street, Providence 7 (Pd)	DE 1-0900
Joyce, Henry S., 201 Waterman Avenue, East Providence 14	EA 1-4123

## K

Kalcounos, William N., ( <i>Pawtucket</i> ) 101 Broadway, Pawtucket	PA 5-5919
Kant, Alfred, Massachusetts Eye and Ear Infirmary, Boston, Massachusetts (Oph)	
Kapnick, Israel, 224 Thayer Street, Providence 6 (S)	GA 1-3143
Kaskiw, Emil A., ( <i>Woonsocket</i> ) 200 Harris Avenue, Woonsocket (Anes)	Woonsocket 6005
Kay, Maurice N., 183 Waterman Street, Providence 6 (Pd)	GA 1-2230
Kechijian, Harry M., 84 Broad Street, Pawtucket (S)	PA 2-0493
Kechijian, Natalie, ( <i>Pawtucket</i> ) 84 Broad Street, Pawtucket (Anes)	PA 5-7420
Keegan, George A., ( <i>Woonsocket</i> ) 34 Hamlet Avenue, Woonsocket	Woonsocket 3400-W
Kelly, Earl F., ( <i>Pawtucket</i> ) 582 Main Street, Pawtucket (Pd)	PA 2-0220
Kennedy, John A., ( <i>Woonsocket</i> ) 635 West 65th St., N. Y. 32	
Kenney, Stephen A., ( <i>Pawtucket</i> ) 258 Broad Street, Cumberland	PA 5-2830
Kent, Joseph C., ( <i>Kent</i> ) 10 Post Road, Edgewood 5	WI 1-1820
Kenyon, Frances A., ( <i>Washington</i> ) Woodville Road, Woodville	Carolina 18R2
Kenyon, Harold D., ( <i>Washington</i> ) Box 226, Misquamicut Hills, Westerly (Anes)	Watch Hill 7137
Keohane, John T., 596 Broad Street, Providence 3	UN 1-1221
Kern, Arthur B., 247 Waterman Street, Providence 6 (D)	DE 1-6183
Kiene, Hugh E., 111 Waterman Street, Providence 6 (PN)	PL 1-5759
King, Alfred E., ( <i>Woonsocket</i> ) 175 Harris Avenue, Woonsocket	Woonsocket 662
King, Arthur W., ( <i>Newport</i> ) Harbor Road, Adamsville	Little Compton 452
King, Francis J., ( <i>Woonsocket</i> ) 175 Harris Avenue, Woonsocket (S)	Woonsocket 662
Kingman, Lucius C., 76 Waterman Street, Providence 6 (S)	DE 1-6138
Kirk, George E., 1337 Smith Street, Providence 8 (ObG)	EL 1-3122
Kiven, Nathan J., 111 Waterman Street, Providence 6 (I)	PL 1-5759
Koch, Peter, Jr., ( <i>Kent</i> ) 1451 Main Street, West Warwick	VA 1-0080
Kostyla, Edward A., ( <i>Kent</i> ) 15 Washington Street, West Warwick	VA 1-0999
Kraemer, Richard J., ( <i>Washington</i> ) 2901 Post Road, Warwick	HI 1-1536
Kramer, Louis I., 126 Waterman Street, Providence 6 (I)	GA 1-3235
Krolicki, Thaddeus A., ( <i>Pawtucket</i> ) 102 Waterman Street, Providence 6 (Pr)	JA 1-9090

## L

Ladd, Joseph H., ( <i>Washington</i> ) Exeter School, Lafayette (HAD)	Wickford 4
Lagerquist, A. Lloyd, 73 Willett Avenue, Riverside 15	EA 1-4615
Lalonde, Alphonse J., ( <i>Pawtucket</i> ) St. Petersburg, Fla.	
Lalor, Thomas J., Jr., ( <i>Woonsocket</i> ) 285 Main Street, Woonsocket	Woonsocket 78-W
Lamb, Francis D., ( <i>Kent</i> ) Lahey Clinic, Boston, Massachusetts	
Lambiase, Joseph, 159 Hilltop Drive, Cranston	HI 1-2581-M
Lamoureux, Stanislas A., ( <i>Pawtucket</i> ) 177 Cove Street, New Bedford, Massachusetts (OALR)	
Landsteiner, Ernest K., 154 Waterman Street, Providence 6 (U)	JA 1-2223
Langdon, John, 43 Irving Avenue, Providence 6 (Pd)	GA 1-1016
Laskey, Howard, Carolina, R. I.	Carolina 30R4
Laufer, Maurice W., Emma Pendleton Bradley Home, Riverside 15 (PN)	EA 1-3400
Laurelli, Edmond C., ( <i>Pawtucket</i> ) 156 Broadway, Pawtucket (S)	PA 3-5451
Lawson, Herman A., 12 Everett Avenue, Providence 6 (I)	PL 1-0784
Lawton, Anne L., State Infirmary, Howard	HO 1-3700
Leech, Clifton B., 82 Waterman Street, Providence 6 (C)	GA 1-5171
Leet, William L., 199 Thayer Street, Providence 6 (I)	UN 1-1158
Lent, James W., ( <i>Newport</i> ) 1698 Main Road, Tiverton	Tiverton 24
Lenzner, Simon G., 187 Waterman Street, Providence 6 (S)	DE 1-8710
Levine, Harry ( <i>Woonsocket</i> ) 162 Main Street, Woonsocket	Woonsocket 3612-W
Levy, William S., ( <i>Woonsocket</i> ) 70 Main Street, Woonsocket	Woonsocket 2098-W
Lewis, Luther R., ( <i>Bristol</i> ) 10 Broad Street, Warren	WA 1-1962
Lewis, Robert V., 441 Angell Street, Providence 6 (I)	DE 1-8060
Libby, Harold, 223 Thayer Street, Providence 6 (ObG)	GA 1-0868
Lippitt, Louis D., 41 Pocasset Avenue, Providence 9	TE 1-2218
Lisbon, Wallace, 928 Smith Street, Providence 8	TE 1-2953
Litchman, David, 225 Waterman Street, Providence 6 (I)	UN 1-1563
Littlefield, Frank B., 199 Thayer Street, Providence 6 (S)	UN 1-1446
Littleton, Thomas R., 204 Angell Street, Providence 6 (ALR)	GA 1-2650





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<sup>1</sup> Hiehle, W. W. (1949), The Use of Sulfonamide Mixtures, Bull. U. S. Army Med. Dept., 9:375, May.

Logler, Frank J., ( <i>Newport</i> ) 42 Kay Street, Newport (S)	Newport 2498-W
Londergan, James P., 81 Governor Street, Providence 6	GA 1-4255
Lord, Robert M., 122 Waterman Street, Providence 6 (Pd)	GA 1-2163
Lovering, Edwin F., ( <i>Pawtucket</i> ) 209 Broadway, Pawtucket	PA 3-5363
Luongo, Fedele U., 508 Charles Street, Providence 4	DE 1-2867
Lupoli, Alphonse W., ( <i>Kent</i> ) 3291 Post Road, Apponaug (I)	HI 1-1600-W
Lury, John J., 1424 Broad Street, Providence 5	HO 1-3300
Lynch, John P., ( <i>Pawtucket</i> ) 210 Central Avenue, Pawtucket	PA 2-9529

## M

MacCardell, Frank C., 193 Waterman Street, Providence 6 (OALR)	DE 1-8433
MacDonald, William J., 221 Thayer Street, Providence 6 (ObG)	GA 1-1710
Mack, John A., ( <i>Kent</i> ) 1575 Main Street, West Warwick	VA 1-0639
MacLeod, Norman M., 114 Touro Street, Newport	Newport 282
Magill, William H., 116 Waterman Street, Providence 6 (G)	GA 1-3539
Maher, William F., 949 Chalkstone Avenue, Providence 8	PL 1-1222
Mahoney, George F., State Sanatorium, Wallum Lake (Pul)	Pascoag 22
Mahoney, William A., 44 Montague Street, Providence 6 (S)	PL 1-1094
Maiello, Robert, 366 Broadway, Providence 3	GA 1-3377
Malinou, Nathaniel J., 334 Smith Street, Providence 8	DE 1-2123
Malone, John M., ( <i>Newport</i> ) 101 Water Street, Portsmouth	Portsmouth 47
Mamos, Photius D., Kennedy Hospital, Memphis 15, Tennessee	
Mandell, Israel, 50 Oakland Avenue, Providence 8	GA 1-2450
Manganaro, Attilio L., ( <i>Washington</i> ) 95 Kingstown Road, Peace Dale (Anes) Narragansett	94
Mapping, Patrick J., ( <i>Washington</i> ) 1 King Philip Drive, East Greenwich	GR 1-3012
Mara, Earl J., ( <i>Pawtucket</i> ) 260 Lonsdale Avenue, Pawtucket (I)	PA 2-2301
Margossian, Arshag D., 315 Broad Street, Providence 7	GA 1-0516
Marks, Herman B., 225 Waterman Street, Providence 6 (Pd)	UN 1-1020
Marks, Joseph, ( <i>Pawtucket</i> ) 1111 Smithfield Avenue, Lincoln	PA 2-9330
Marks, Morris, ( <i>Pawtucket</i> ) 838 Newport Avenue, Pawtucket	PA 5-6783
Marshall, J. Brewer, ( <i>Pawtucket</i> ) 12 Mulberry Street, Pawtucket	PA 2-4460
Martin, Arthur E., 101 Waterman Street, Providence 6 (Or)	GA 1-9271
Martin, Richard J., Silk Lane, North Scituate	Scituate 1-3347
Martineau, Lawrence A., Rhode Island Hospital, Providence 2 (R)	DE 1-4300
Marzilli, Alexander F., 7 Dexter Street, Providence 9	EL 1-3366
Masse, Omer H., ( <i>Pawtucket</i> ) 19 Crossman Street, Pawtucket	PA 5-2880
Mathews, Frank H., 382 Brook Street, Providence 6 (Anes)	GA 1-1815
Mathewson, Earl J., ( <i>Pawtucket</i> ) 20 Park Place, Pawtucket (S)	PA 5-2688
Matteo, Frank I., 463 Broadway, Providence 9 (ObG)	UN 1-3111
Mattera, Vincent J., 425 Broadway, Providence 9 (Anes)	UN 1-2526
Mauran, William L., 185 Angell Street, Providence (Pd)	DE 1-6507
Maynard, Irene G., ( <i>Kent</i> ) 40 Curson Street, West Warwick	VA 1-1305
Maynard, Jean M., ( <i>Kent</i> ) 40 Curson Street, West Warwick	VA 1-1305
McAllister, Philip C., ( <i>Newport</i> ) 2 School Street, Newport	Newport 588-W
McAteer, Raymond F., ( <i>Washington</i> ) 1880 Broad Street, Cranston 5 (PH)	WI 1-6565
McCabe, Francis J., 204 Angell Street, Providence 6 (OALR)	PL 1-3675
McCaffrey, James P., 116 Waterman Street, Providence 6 (G)	GA 1-6533
McCann, Donald, 223 Thayer Street, Providence 6 (Oph)	GA 1-5239
McCann, James A., 207 Waterman Street, Providence 6 (S)	GA 1-1862
McCarthy, James M., ( <i>Woonsocket</i> ) 426 Blackstone Street, Woonsocket	Woonsocket 44-W
McCaughy, Edward H., ( <i>Pawtucket</i> ) 118 Prospect Street, Pawtucket	PA 5-7213
McClellan, George B., ( <i>Pawtucket</i> ) 435 Central Avenue, Pawtucket	PA 5-2289
McCooley, James H., ( <i>Woonsocket</i> ) 99 Main Street, Woonsocket	Woonsocket 1747
McCusker, Henry F., 167 Angell Street, Providence 6 (Or)	DE 1-4901
McDonald, Charles A., 106 Waterman Street, Providence 6 (PN)	GA 1-1711
McDonnell, William A., 20 Highland Avenue, North Providence 11 (Anes)	TE 1-0425
McDuff, Henry C., Jr., 155 Thayer Street, Providence (ObG)	JA 1-3762
McEvoy, Frank E., 295 Angell Street, Providence 6 (S)	GA 1-0578
McGinn, James F., ( <i>Pawtucket</i> ) 19 Stewart Street, Pawtucket	PA 2-3929
McGovern, Llewellyn J., 162 Indiana Avenue, Providence	HO 1-2125
McGrath, James A., ( <i>Washington</i> ) 155 Main Street, Wakefield	Narragansett 1-444
McIntyre, William A., 1588 Smith Street, North Providence (Anes)	WI 1-6500
McKendry, James R., 568 Hope Street, Providence 6 (Or)	GA 1-3272
McKenna, Joseph B., ( <i>Woonsocket</i> ) 162 Main Street, Woonsocket	Woonsocket 214-W
McLaughlin, Edward A., 155 Academy Avenue, Providence (PH)	DE 1-7470
McOsler, Thomas C., Capt., U.S.A., Redstone Arsenal, Huntsville, Ala.	
McWilliams, Joseph G., 154 Angell Street, Providence 6 (I)	GA 1-4487
Medoff, Edward B., ( <i>Woonsocket</i> ) Room 204, Hospital Trust Building, Woonsocket	Woonsocket 804-W
Mellone, John A., ( <i>Bristol</i> ) 15 Bay Spring Avenue, West Barrington	WA 1-0682
Melucci, Alfred F., ( <i>Pawtucket</i> ) 113 West Avenue, Pawtucket	PA 2-0269

# 4TH ANNUAL CANCER CONFERENCE FOR PHYSICIANS

*Under the Auspices of the*

**RHODE ISLAND MEDICAL SOCIETY**

**WEDNESDAY, OCTOBER 17, 1951**

**At the U. S. VETERANS ADMINISTRATION HOSPITAL, Providence, Rhode Island**

## *Morning Session*

**Presiding: George W. Waterman, M.D.**

*Chairman, Cancer Committee, R. I. Medical Society*

\* \* \*

**11 a.m. CHEMOTHERAPY OF CERTAIN TYPES OF MALIGNANT DISEASE**  
Robert Boynton, M.D., Physician, Medical Service, Providence Veterans Administration Hospital

**11:30 a.m. BRONCHIOGENIC CARCINOMA**  
Herman A. Lawson, M.D., Chief, Medical Services, Providence Veterans Administration Hospital; President, R. I. Medical Society

**12:00 GASTRIC ULCER AND STOMACH CANCER**  
Philip Cooper, M.D., Chief, Surgical Services, Providence Veterans Administration Hospital

**12:30-1:30 p.m. Luncheon at the Hospital**

**1:30 p.m. Motion Picture: GASTROINTESTINAL CANCER — THE PROBLEM OF EARLY DIAGNOSIS**

**2:00 p.m. PALLIATIVE TREATMENT OF CANCER**  
Ira T. Nathanson, M.D., of Boston, Associate Visiting Surgeon, Massachusetts General Hospital; Associate Clinical Professor of Surgery, Harvard Medical School

**2:30 p.m. AIMS AND OBJECTIVES OF THE AMERICAN CANCER SOCIETY**  
Charles S. Cameron, M.D., of New York City, Medical and Scientific Director, American Cancer Society

**3:00 p.m. PHYSICAL EXAMINATIONS IN INDUSTRY AS CANCER CASE FINDING PROCEDURE**  
C. D. Selby, M.D., of Ann Arbor, Michigan, Resident Lecturer in Industrial Health, School of Public Health, University of Michigan; Formerly Medical Director, General Motors Corporation

**3:30 p.m. CANCER OF THE PROSTATE; EARLY DIAGNOSIS AND CERTAIN HORMONAL ASPECTS OF TREATMENT**  
J. Hartwell Harrison, M.D., of Boston, Associate Clinical Professor of Genito-Urinary Surgery, Harvard Medical School; Urologic Surgeon, Peter Bent Brigham Hospital

**4:00 p.m. GENERAL DISCUSSION. QUESTIONS FROM AUDIENCE**

Melvin, Edward G., 369 Broad Street, Providence 7	DE 1-1018
Menzies, Gordon E., 154 West Main Street, Wickford	Wickford 23
Merchant, Marcus H., (Bristol) 390 Main Street, Warren	WA 1-0077
Merlino, Frank A., 377 Hope Street, Providence 6 (Pul)	GA 1-6745
Merrill, Whitman, (Kent) 99 Main Street, Coventry	VA 1-0881
Messinger, Margaret, 210 Angell Street, Providence 6 (Anes)	PL 1-3803
Metcalf, Cecil J., 198 Angell Street, Providence 6 (Anes)	UN 1-0494
Migliaccio, Anthony V., 196 Broadway, Providence 3 (S)	GA 1-4341
Millard, Charles E., (Bristol) 673 Main Street, Warren	WA 1-0220
Miller, Albert H., 28 Everett Avenue, Providence 6 (Anes)	DE 1-5058
Miller, Henry, 194 Waterman Street, Providence 6 (I)	UN 1-0832
Miller, Himon, 105 Waterman Street, Providence 6 (PN)	GA 1-2541
Mills, Parker, 266 Smith Street, Providence 8	GA 1-1388
Miner, Harold C., 1447 Broad Street, Providence 5	HO 1-2141
Missirlian, Mihran, 188 Broad Street, Providence 3	GA 1-5842
Mochnecky, John, 660 Broad Street, Providence 7	GA 1-4871
Molony, Walter J., 715 Broad Street, Providence 7 (Or)	WI 1-1423
Monahan, John T., 160 Academy Avenue, Providence 8	EL 1-0213
Mongillo, Barrito B., 275 Wayland Avenue, Providence 6 (PN)	DE 1-5956
Monti, Emilio J., 214 Broadway, Providence 3	GA 1-4239
Monti, Victor H., (Woonsocket) 50 Carrington Avenue, Woonsocket	Woonsocket 4092
Moor, Henry B., 147 Angell Street, Providence 6 (S)	GA 1-3007
Moore, James S., 30 John Street, East Providence 14	EA 1-2074
Moran, James B., 66 Fruit Hill Avenue, Providence 9 (I)	EL 1-4661
Morein, Samuel, 345 Angell Street, Providence 6 (I)	GA 1-0970
Mori, Laurence A., 55 Pocasset Avenue, Providence 9	TE 1-0500
Morrone, Louis A., (Washington) 21 Grove Avenue, Westerly	Westerly 2234
Motta, Gustavo A., 164 Academy Avenue, Providence 8	EL 1-5554
Mowry, Classen, 15 South Hill Drive, Cranston 9	UN 1-9237
Mowry, Jesse E., 211 Washington Avenue, Providence 5	HO 1-2229
Muller, Gertrude L., 193 University Avenue, Providence 6 (PN)	DE 1-5398
Mulvey, William A., Ten Rod Road, Lafayette, (Pd)	
Muncy, William M., 162 Angell Street, Providence 6 (OALR)	GA 1-4385
Murphy, John F., 289 Angell Street, Providence 6 (ObG)	GA 1-0455
Murphy, Robert G., 184 Angell Street, Providence 6 (I)	DE 1-3424
Murphy, Thomas H., 169 Waterman Street, Providence 6	UN 1-2551
Myrick, John C., 572 Broad Street, Providence 7 (S)	EL 1-1221

## N

Nardone, Girard F., (Washington) 4 Elm Street, Westerly	Westerly 4230
Nathans, Samuel (Washington) Watch Hill Road, Westerly (Anes)	Westerly 2279
Nerone, William S., 21 Bullocks Point Avenue, East Providence 15	EA 1-4462
Nestor, Thomas A., (Washington) 69 Kenyon Avenue, Wakefield (S)	Narragansett 378
Nevitt, Francis W., 575 Pontiac Avenue, Cranston 10	HO 1-3500
Nichols, Ira C., Berkeley, California (PN)	
Nodarse, Raul, 912 Manton Avenue, Providence	EL 1-8684
Normandin, Louis A., 240 Taunton Avenue, East Providence 14	EA 1-1100
Nourie, Joseph P., 1339 Smith Street, Centerdale 8	JA 1-7733
Noyes, Ira H., 199 Benefit Street, Providence 3 (G)	DE 1-7585

## O

O'Brien, James P., (Woonsocket) 70 North Main Street, Woonsocket (PH)	Woonsocket 3665
O'Brien, John H., 95 Taunton Avenue, East Providence 14 (S)	EA 1-0092
O'Brien, Martin, (Washington) 13 Champlin Street, Wickford	Wickford 2-0995
O'Brien, William B., State Sanatorium, Wallum Lake (Pul)	Pascoag 22
O'Connell, Francis D., 215 Thayer Street, Providence 6 (S)	GA 1-1441
O'Connell, Joseph C., 215 Thayer Street, Providence 6 (S)	GA 1-9046
O'Connell, Thomas L., 359 Broad Street, Providence 7 (OALR)	GA 1-3321
O'Connell, William J., 198 Angell Street, Providence 6 (I)	GA 1-1423
O'Connor, John V., (Woonsocket) 247 Gaskill Street, Woonsocket	Woonsocket 3098
O'Connor, Michael J., 105 Waterman Street, Providence 6 (ALR)	GA 1-0935
Oddo, Vincent J., 322 Broadway, Providence 9 (U)	GA 1-1461
O'Reilly, Edwin B., 737 Smith Street, Providence 8	DE 1-1132
Orlando, Lorenzo, 1235 Cranston Street, Cranston	JA 1-1125

## P


Pahigian, Vahey M., 323 Angell Street, Providence 6	JA 1-9870
Palmer, William H., 1496 Broad Street, Providence (Ind)	ST 1-5070
Palumbo, Joseph A., 118 Pocasset Avenue, Providence 9	EL 1-1916
Pardee, Katherine, State Sanatorium, Wallum Lake (Pul)	Pascoag 22
Parkinson, James M., 497 Hope Street, Providence 6	PL 1-3017



Parrillo, Joseph M., 376 Broadway, Providence	UN 1-6556
Partridge, Herbert G., 190 Angell Street, Providence 6 (Ob)	GA 1-5544
Paterson, John A., Veterans Administration Hospital, Togus, Maine (PN)	
Pearson, Rudolph W., 300 Thayer Street, Providence 6 (ALR)	UN 1-2224
Pedorella, Americo J., 242 Broadway, Providence 3 (Anes)	GA 1-8218
Pelletier, Emery, 505 Elmwood Avenue, Providence 7	HO 1-3141
Penington, Robert, Jr., U. S. Naval Academy, Annapolis, Maryland	
Perry, Thomas, Jr., 154 Waterman Street, Providence 6 (S)	DE 1-1717
Petrucchi, Ralph J., (Bristol) 88 Child Street, Warren	WA 1-1121
Phillips, Charles L., (Kent) 294 Main Street, East Greenwich	GR 1-0175
Pianka, Wallace J., U. S. Veterans Hospital Annex, Vancouver, Washington	
Pickles, Wilfred, 184 Waterman Street, Providence 6 (S) (NS)	GA 1-1228
Pinault, William N., (Pawtucket) 838 Newport Avenue, Pawtucket	PA 2-8474
Pitts, Herman C., 68 Brown Street, Providence 6 (S)	GA 1-4121
Platt, Marden G., (Pawtucket) 319 Willett Avenue, Riverside 15	EA 1-3836
Porter, Arnold, 454 Angell Street, Providence 6 (S)	PL 1-2440
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